THE BUILDER

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LONDON HOUSING.

WE have more than once pointed out that one of the most acute and difficult of the housing problems is that which concerns London, and more especially the inner parts of our overgrown metropolis, and we are beginning to hear something in detail of these difficulties, though their solution has got to be found. A great effort is now being made to provide accommodation by the conversion of middle-class property into flats, but this we hold will never provide a solution, though it may materially relieve the immediate difficulties of the situation. Moreover, some of this property, though now untenanted owing to temporary financial changes and embarrassments, may well be wanted again for its normal purposes in a few years, when the abnormal conditions caused by the war have been removed or adjusted, as we feel they must be. Hence, though conversion in many instances and perhaps over specific districts may be wise as a permanent measure, it will be well to consider this movement carefully in order to prevent the possibility of having to face restorations in a few years time, for at best conversion must be regarded as an expedient to meet a crisis and not as an ideal means of providing permanent housing accommodation. The *Times* correspondent last week points out that in interior London many sites which might be considered for housing schemes, are badly needed for industrial purposes and business premises, and nothing at the present time should be placed in the way of development of trade interests. Unfortunately, any adequate new scheme involves so great an outlay for land that the boroughs are faced either with most extravagant schemes, which may fall heavily on the rates in years to come, or with the erection of storied tenements which, though they may provide for greater superficial area and better sanitation than in the past, cannot possibly admit of the amenities which are now regarded as essential for the production of an A1 population. It would almost seem that the internal London boroughs will have to apply to building schemes Mr. Punch's advice to those about to marry, and devote themselves to the problems of how to get out of their areas and plant their children in the nests of other homemakers more fortunately situated, which, of course, brings us back to the old problem of transit. Surely it is time that the L.G.B. gave London a really definite line to work upon.

If some of the boroughs are to contribute in any way to schemes promoted by other boroughs as the result of their own inactivity, this may induce action which may, in certain cases be really undesirable, and, again, a wish to uphold the traditions of a borough as progressive may induce its councillors to embark upon a scheme which in other circumstances would have been regarded as not sufficiently desirable to justify acceptance. What we feel is wanted is a general policy coupled with advice to each particular borough which is in difficulties, advice tendered on predetermined lines, the acceptance of which shall put the local authorities right with the Board and also with the ratepayers. Suppose, for example, it be granted that a housing scheme in a particular borough is not practicable, let it be so stated on the Board's authority, and let the energy which would have been expended on the scheme, and possibly also the produce of the penny rate, be devoted to assisting in arterial road schemes to help the population of this area to get away from its impracticable area. If it be objected that this is not housing, it seems pertinent to reply that the only means of effecting a solution lies in real co-operation between housing and transit. With the increasing cost of building we revert again to the problem of temporary accommodation. We think that there are some signs on the horizon that the industrial worker is beginning to realise that his demands must some day reach finality. However, in the light of recent demands, such as those of the Richborough labourers, it does not yet seem that conviction on this matter has reached trade operatives generally. Houses for housing schemes began with a modest quotation of £500 per cottage, but for a long time £700 to £900 has been accepted as the usual figure, and now Ramsgate is contemplating a scheme at £1,000 to £1,200 per house. In the face of these figures it would surely be better to make more of temporary buildings. Some authorities have adopted this attitude. Newport, for example, is purchasing Army huts for conversion, but according to the *Times*, the price asked is excessive, and the cost likely to work out at £500 a house. Other authorities have rejected this scheme. It seems to us that it would be better to spend less in the most urgent cases and erect temporary structures which can in any fairly open situation be made quite sanitary, even without a drainage system, in order to do something quickly, for even if such buildings have only a ten years' life, prices can hardly remain at their present level when the time comes to consider rebuilding. Here, again, the L.G.B. seems to hesitate as regards its attitude. We were informed quite definitely some months ago that loans would not be made upon temporary buildings, but although we have no specific case to cite, we think we are correct in saying that this attitude shows signs of modification. Temporary buildings may not be ideal, but they do meet the pressing need more rapidly and cheaply than permanent structures, and there should be plenty of them at disposal. They will, moreover, in a small way—and the small ways are the important things in the aggregate—answer the call to immediate national economy. The less we spend the better our international financial position, and the erection of houses is not a financial investment which will give us a quick return, though it will undoubtedly p oduce a return in the matter of a better physical standard which will help us financially in years to come. What we want at once is a better rate of exchange with foreign nations, for it is not going to help us to obtain only 17s. 6d. worth of goods or work for every sovereign we spend.

The housing problem is slowly working out its salvation at a cost nevertheless to the State which it is difficult to contemplate without grave misgivings. We must have a crushing national charge which only great efforts can enable us to meet without a considerable lowering of our national credit. The problems in rural districts are sufficiently onerous, but London possesses its own special difficulties, which are due to the uncurbed growth of this monster town in years past. A water-tight policy by boroughs is not going to assist matters, and the only way out, as it seems to us, is a policy for London as a whole. Not a policy which means the creation of a wearisome collection of new committees, but a scheme which is the product of one or two clear heads, and which shall direct the boroughs and prevent them from being pushed into undesirable undertakings merely for the sake of doing something, and we would strongly recommend any schemes, such as have been suggested, which will tend to reduce immediate expenditure even with a doubtful building future, for it must not be forgotten that prices have not yet stopped rising, and will not stop until the causes of increase, such as industrial demands and apathy, and inflated currency, have been in a large measure removed.

NOTES.

The Government and the Building Trade.

THE Building Industries, Consultative Board, representing the architects, surveyors, building trades' employers, and building trades' operatives of the country was recently formed by the Royal Institute of British Architects for the purpose of concerting measures to relieve the stagnation in the building trade. One of the first evils that it has had to deal with is the excessive cost of building, due in part to the uncertain supply and the high prices of building materials. The Board has been in communication with the Ministry of Munitions which, through its Department of Building Materials Supply, is the most important single factor in determining the output and cost of materials. The Ministry has very courteously assisted the deliberations of the Board by supplying it with the fullest information as to its past procedure and present policy, and has invited from the Board an expression of opinion as to its future policy. The Board has accordingly passed the following resolutions and forwarded them to the Ministry of Munitions :—

(1) Resolved, that in the opinion of this Board the stocks of bricks and other building material (in excess of actual Government requirements) which are the property of, or are controlled by, the Government should be sold in the open market with a reasonable margin above cost to cover expenses.

(2) Resolved, that in the opinion of this Board the building industry and its associated trades should now be and remain free of Government control or interference.

The Board is unanimously of opinion that the speedy establishment of a free market in building materials will go far to improve the difficult situation which at present exists.

Delay in Housing Schemes.

THIS opinion of the Building Industries' Consultative Board will, we believe, be endorsed by most architects and builders. Whatever justification there may have been for this control in the recent past, there appears to be none whatever now, and we hope that the resolution of the Board will have immediate effect. In view of the delay in carrying out housing schemes, the material cannot be immediately required for that purpose. Another point is that the Ministry of Health has still to fix the scale of architects' remuneration—a question of considerable importance which is dealt with by a correspondent on page 238.

The Royal College of Art.

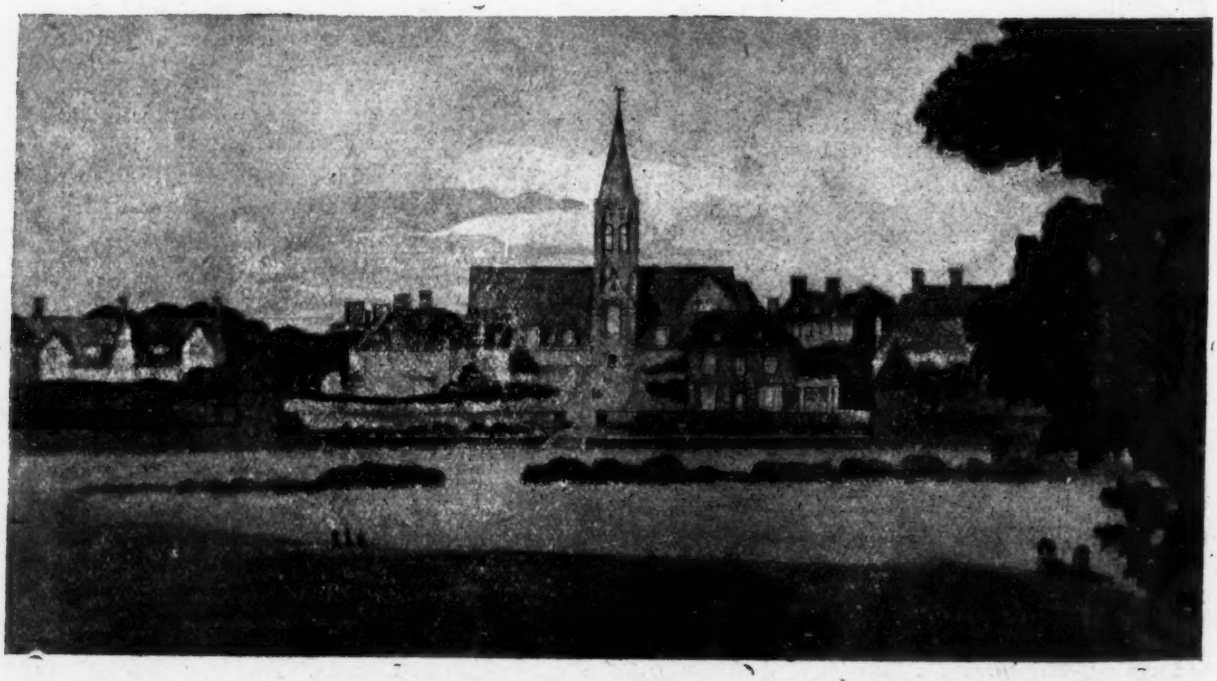
THE Royal College of Art prospectus (1919) has just reached us. Like every other institution it has been subjected to severe criticism as one of the misdirected arrangements for the manufacture of art. It has, however, always appeared in the annual exhibitions that the work of the R.C.A. showed a high proportion of merit, notwithstanding the low proportion in schools of art in relation to their total activities. The school does not suffer from lack of able direction, at all events, with Professor Pite for architecture, Professor Derwent Wood for sculpture, Professor Anning Bell for design, Professor Moira for painting, and Professor Short for etching. The visitors are Sir R. Blomfield, R.A., J. H. Dearle, B. Mackennal, A.R.A., and Professor W. Rothenstein.

The late Mr. Ernest Gimson.

WE noticed on August 22, the recent death, at his home near Sapperton, in Gloucestershire, of the well-known designer and craftsman, Mr. Ernest Gimson, whose work in furniture, though following the best tradition of the Queen Anne period possessed original qualities of design and admirable craftsmanship. Mr. Gimson came, in his earlier life, under the influence of the late William Morris, and still more under that of Philip Webb. An architect by profession, he associated himself with Sir Arthur Blomfield and Mr. Mervyn Macartney in the movement, which Morris himself had initiated, for the bettering of English furniture and architectural design; and under his lead the Daneway Works became known for the fine quality of its furniture and metal design. These works had lately been restarted after being closed through war conditions, and it may be mentioned here that Ernest Gimson's work was much appreciated in France as well as in his own country.

The Picturesque and the Formal in Architecture

MR. ERNEST LAW, F.S.A., in his recent address to the Royal Archæological Institute, at Hampton Court, referring to the original Tudor Palace, spoke of the "Beauties of the building and the pleasing effect produced by the freedom and absence of rigid uniformity in the details as compared with Wren's symmetrical work in the later building." The picturesqueness of Gothic has a particular charm which appeals to many minds much more than the



View of Hampstead Garden Suburb, from the Heath.
From a Drawing by Mr. LEONARD BARNISH A.R.I.B.A.

formal dignity of the later Renaissance. In some recent examples of architecture, formalism appears to have been decidedly overdone, and the effect is hard and bureaucratic. The earlier Renaissance work is picturesque, also refined and not lacking in dignity; it seems, in many respects, to offer more promising suggestions for the present-day designer than the later types in which the "orders" are rather too prominent.

National Economy. IF the Government is really about to give us the lead foreshadowed in the Press relative to the cutting down of establishment charges, the example should have a greater effect on the country than all the preaching. While readily acknowledging much splendid work done by departments, many of which were necessarily of an impromptu nature, we know from our own experience that there is a deal of clinging to office. This is only natural, but the assumption that what were frankly temporary posts should become permanent and continue nearly a year after hostilities have ceased shows a very poor national spirit. We should like to see the building trade take the lead in the revival of a sane attitude towards the necessary conditions of existence. There is some evidence that the lead in this matter may be taken by the engineers, but with the enormous taxation prospects in connection with housing, it is the building trade which will secure the esteem and sympathy of the public if it will really "turn to" and put its back into its job.

Town Planning. WE realised afresh the other day how the activities of those engaged in town-planning appear to fall powerless, not only in great centres, but amongst so many smaller towns. The Royal Borough of Hamilton, in Scotland, contains some interesting relics of former days in the old buildings near the stables of Hamilton Palace. The old jail, which used to be styled the town cross, is actually within the park enclosure of Hamilton Palace, but its preservation as a town's memorial is imperative. Its general design is most characteristic and interesting, with its heavy iron grills to the windows and an admirable tower (which has been spoiled by the addition of the top story); a bit of iron balcony railing in the centre of the front is a most charming piece of work. Yet this and another old building near are surrounded by squalid, derelict buildings whose days are evidently numbered. Is anyone responsible for the decent architectural treatment of this interesting spot? This is only a solitary instance, however, for in another Royal Borough we find a worse condition still. At Windsor there might be taken a street view which would form a picture of Carolean times, but looks likely to be doomed to destruction. And this under the walls of Windsor Castle! The fact is that town planning activities ought to take a more practical form and cover wider areas. The preservation of local values all over the country is a matter of the greatest interest to architects, and the winding, awkward streets of many small, old towns might possibly be retained to advantage if through traffic were provided for in better ways. Such a large task as this local supervision throughout the country is, of course, too heavy a burden for the supervision of any central body, but surely the Ministry of Health, acting on the advice of architectural bodies, could appoint local referees throughout the country who might be consulted. Many such referees would gladly act without fees.

A Fixed Rate of Interest on Capital. A CORRESPONDENT writes:—"If the recommendation of the Committee of the Industrial Council for the Building Industry that capital employed on building shall only receive a fixed rate of interest is carried out, what inducement is left for capitalists to encounter all the trouble and risks involved in building operations if they can invest in Government Stocks for equal gain and no trouble? These are the kind of silly conundrums which our far-seeing advisers are constantly bringing before us.—Yours, A BEWILDERED CITIZEN."

From the *American Architect.*

Central Pavilion of Main Facade, State Normal School, Fresno, Cal., U.S.A.
Mr. G. B. MCDOUGALL, State Architect.

GENERAL NEWS.

Personal.

BIRMINGHAM HOUSING DIRECTOR.—The Housing Committee has appointed Lieut.-Col. F. T. Fox as temporary housing director, at a salary of £1,000 per annum.

GLASGOW HOUSING DIRECTOR.—The Glasgow Housing Committee has recommended that Mr. Peter Fyfe, at present the chief sanitary inspector, be appointed director of housing, at a commencing salary of £1,300 per annum.

WILL.—The late Mr. G. A. Storey, R.A., left estate of the gross value of £1,383.

Allotments.

We are only indirectly concerned with allotments, but many of us will await with interest the result of the forthcoming meeting between Lord Lee and the Allotment Holders' Union next week. While the restoration of other public spaces in our cities is very important, the production of foodstuffs by private individuals as a national safeguard, a means of killing the profiteer, a valuable help to physical well-being, and an aid to reducing imports, should command very serious attention of the Board of Agriculture.

The Kew Gardens' Flagstaff.

The Agent-General for British Columbia has issued a booklet, giving the history of the large flagstaff to be erected in Kew Gardens. The staff, which is of fir, is 215 ft. in height, and was selected from the forests of British Columbia. The tree was originally 6 ft. in diameter, but after being shaped it measures 33 in. across the butt, tapering to 12 in. at the top. In shape, it is square up to 15 ft., octagonal from thence to 157 ft., and the remainder is round. The tree was felled in 1914, but owing to transport difficulties—due both to the war and the size of the staff—it was not delivered at Kew until January 10, 1916. The booklet also contains particulars of British Columbian timber and forestry.

The British Museum.

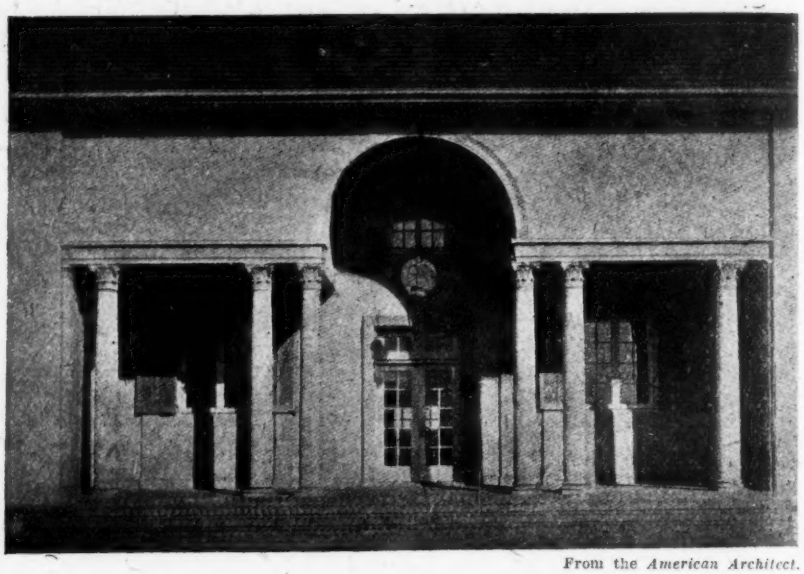
Since the cessation of hostilities, all the specimens which were removed from the British Museum and stored in the country and the Post Office tube station for safety from air-raids, have been safely returned. The objects which were removed included the frieze of the Parthenon, Greek vases and bronzes, Assyrian bas-reliefs, the Rosetta stone, and the finest of the objects of mediæval art, together with practically the whole collections of coins and medals, books, manuscripts, &c. Among the gifts to the Museum last year were a selection of drawings of old masters from Sir Edward Poynter's collection, the torso of an Aphrodite and some Greek coins, some early Sumerian objects, from the sites of Ur and Erech, in Mesopotamia, were also added.

The Forestry Bill.

In moving the second reading, of the Forestry Bill, in the the House of Commons, Sir A. Griffith-Boscawen said that only eight per cent. of the timber consumed in this country was home-grown. There was an immense acreage in this country suitable for the planting of timber, and if an effort was to be made to cope with the situation, it must be made under one single authority. There was no intention to have the whole work centralised, and there would be separate committees for England, Wales, Scotland and Ireland. It was estimated that four or five million acres were available for the planting of timber, and it was proposed to plant 1,750,000 acres in the next eighty years. The Bill only dealt with the ensuing ten years, and in this period it is proposed to plant 150,000 acres by direct State action; 25,000 acres by a profit-sharing scheme between the State and the landowners, and 25,000 acres by local authorities or private individuals. A sum of £3,500,000 would be paid out of the Consolidated Fund during the next ten years for afforestation purposes. The Bill has received Royal Assent.

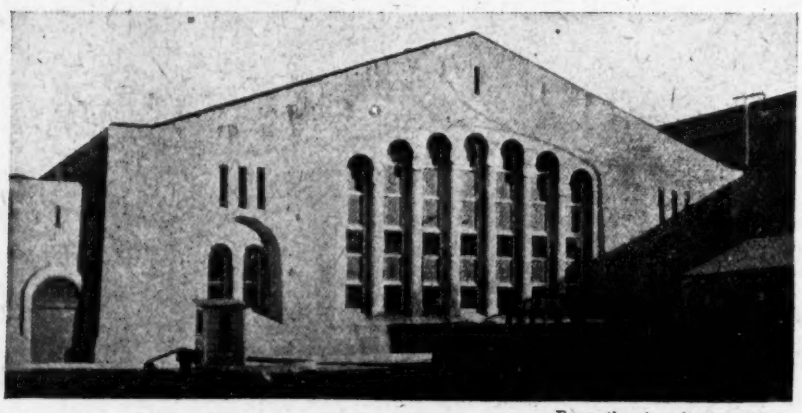
Obstacles to Building.

In the course of a letter to the *Times*, Mr. Nicholas Everitt, says that the Finance Act of 1910 absolutely paralysed the building trade, and its repeal would be the first step towards the encouragement of house building for the poorer classes. At present many people prefer to keep their houses empty rather than let them to bad tenants they can never get out, whilst in the East Coast towns there are many good houses utterly wrecked by the soldiers, and yet the Government takes no steps whatsoever towards reinstatement, or fairly compensating the owners. These shells are unoccupied, and likely to remain so for a long time to come. With Dora, and controls, and red tape, and officialism rampant at every turn, how can anyone be expected to build a house, except possibly the man having enough money to contemplate living in it himself? If the Government wants to encourage house building, it must forthwith repeal the site values cheapen conveyancing, abolish controls (over houses), and the many restrictions; then the builder will go back to his trade, the pioneers will emerge from their seclusion, and the houses wanted will spring into being; and their prices will automatically fall as a surplus arises from the over-demand.



From the *American Architect*.

Main Entrance. Women's Building, State Fair Grounds, Sacramento, Cal., U.S.A.
Mr. G. B. MCDOUGALL, State Architect.



From the *American Architect*.

Dining Hall, State Prison, San Quentin, Cal., U.S.A.
Mr. G. B. MCDOUGALL, State Architect.

Conversion of Houses into Flats.

With reference to the announcement that nearly 1,000 houses in London have been scheduled as generally fit for conversion into flats, Mr. Wm. Woodward, F.R.I.B.A., in a letter to the *Times*, asks for information regarding the localities of the houses; whether proper plans, specifications, &c., have been prepared; whether quantities and reliable estimates have been obtained; whether Treasury sanction will be obtained before public money is expended; how long the Office of Works contemplates the work of conversion will take; and what the surrounding losses will be, and how much the taxpayer will have to pay for the expenditure of money by the Government which cannot be reimbursed by the rents to be obtained from future tenants.

Flats in London.

In the course of a letter to the Press, Mr. J. H Dickinson, a director of Kensington Maisonettes, Ltd., says that, in his opinion, the Government would meet the wishes of 90 per cent. of those seeking accommodation in London, and at the same time save money, by providing flats instead of a large number of new houses. The desire to eliminate a large proportion of house work has led to a great demand for flats, especially those equipped with the latest labour-saving devices and up-to-date conveniences. His firm has experienced considerable opposition in converting large leasehold houses into flats, and delays of three or four months often occur before the consent of the ground landlord can be obtained.

CORRESPONDENCE.

Architects and the Ministry of Health.

SIR,—When the R.I.B.A. issued its revised scale of charges in the spring of this year, a special section dealt with housing schemes—plans, lay-outs, surveys, &c.—and members of the Institute, when asked by local authorities what their charges would be, have quoted this scale.

On presenting an agreement for the Council's seal (a very necessary precaution), it is discovered that the Ministry of Health has issued a document, dated August, 1919, stating "a separate memorandum will be issued with regard to the scale of fees payable to architects and surveyors in private practice, which may rank for financial assistance under the scheme." This memorandum was not forthcoming on August 28, and in the meantime the payment of private architects who have done preliminary work is entirely unsecured unless—and here is the rub—they are prepared to sign an undertaking to accept a scale now unknown, but to be issued by the Ministry of Health. Apparently, the Ministry proposes a reduction on the R.I.B.A. scale, or its belated decision, it is fair to assume, would have been issued ere now.

Architects in private practice should give very careful consideration before undertaking heavy responsibilities at unknown remuneration, especially if the fees are in the nature of a lump-sum contract, involving filling up many forms, with the necessary calculations. The Ministry of Health requires all plans on linen and in duplicate, and what further forms and copies may from time to time be asked for, in addition to copies of plans for the sanitary authority, clerk of works, contractor, &c., is a matter of speculation.

The supervision during erection, even with the help of a clerk of works (whose appointment is not guaranteed) in rural and urban districts, is a considerable matter, and when, as is often the case, the cottages are isolated and widely separated, the time involved and the recurring cost of motor hire will need consideration and appraisement.

It is quite time that the public should know some of the causes that retard the production of housing schemes, and in the event of the fees offered by the Ministry of Health to private architects being unremunerative, the public should be told, before it is too late, why many well-qualified men find it impossible to place their services at the disposal of the State. If ever in the history of this country the services of highly-trained and well-qualified architects have been needed, it is now, and any short-sighted or cheeseparing policy which excludes such service will result in very false economy and in the permanent disfigurement of our rural and urban areas.

"X."

Concrete Cottage Construction.

SIR,—I have read with great interest the report of Dr. Faber's lecture on "The Application of Concrete Construction to Cottages," in your issue of August 29, p. 207, and note the serious objection that he urges against the use of dry-moulded concrete produced by block-making machines, together with his denial that "in this process there was any saving on the finished work." Dr. Faber refers afterwards to the method of constructing panels of concrete on the ground in a horizontal position, and, by means of "an economical lifting tackle," hoisting them into position. In view of the considerable weight of concrete and the necessity of moving any hoisting apparatus that may be employed from place to place, I believe that there is no economical machinery or tackle available for raising the panels or walls from the ground into their vertical position, while, on the contrary, such apparatus as I have seen or heard of is so costly and cumbrous as to be quite unsuitable for the purpose. But no such mechanical appliance is required if we avail ourselves of the natural force of gravitation which will do the work easily, simply and almost instantaneously, placing in our hands the most efficient and economical means of cottage building that I have yet heard of. I shall be glad to furnish further particulars of its application to any one interested in the subject.

T. L. WATSON.

Glasgow.

Consulting Engineers and Local Authorities.

SIR,—I see by the technical Press that the Ministry of Health does not favour the proposal of the Swansea Corporation to carry out its new drainage and outfall sewer scheme without the calling in of outside expert assistance, as originally proposed. It is believed that the Swansea Council did call in outside expert assistance, and that schemes were propounded, and it would be rather interesting to know if it is any of these schemes that the Council now proposes to carry out.

I do not say it is so in the case of Swansea, but unfortunately many public bodies have, for a comparatively small fee, obtained schemes of sewerage, sewage disposal and water supply, from qualified engineers, who have spent practically their whole lives in acquiring a theoretical and practical knowledge in connection with this kind of work. The engineers have been induced to put a good deal of blood and brain, and often money, into the preparation of their reports and plans, believing that they had only to produce an efficient scheme to ensure their being appointed engineers therefor, and entrusted with the carrying out thereof. In the writer's opinion, it is nothing short of sheer robbery for public bodies to take over a consulting engineer's report and plans, and allow them to be carried out by its own Surveyor. Such officers, as a rule, have their time already fully occupied with their ordinary routine work, and are not free to properly supervise schemes of considerable magnitude. They cannot claim to be experts in every branch of municipal engineering.

Most councils appreciate that it is very desirable when carrying out schemes (say, of water supply and sewage disposal) that they should have the expert advice of men who have made a life-long study of these particular matters, but they are often induced to put the work into the hands of the local Surveyor, believing that they are likely to save a great deal of money by so doing. The result is frequently the contrary. In the first place, the Surveyor's staff has to be very largely augmented, and he has to obtain the services of assistants who have been specialising in the particular kind of work contemplated. The latter are often drawn from the staffs of expert engineers in private practice. As regards the work being carried out at a cheaper rate by the local Surveyor, I think it must be clear that the men best qualified to carry out particular kinds of work at the lowest, or least expensive rates, are those who have spent their lives in executing those classes of work.

The Ministry of Health has been persistent in its efforts to ensure that local authorities should appoint architects in connection with the public housing schemes, and if it is justified in this, it would be equally justified in insisting upon local authorities, who are the custodians of the public purse, engaging the services of expert engineers in electric power and lighting schemes, sewerage, sewage disposal, water supply and similar works, in which very often large sums of money are involved. In the case of the smaller authorities, very frequently the cost of such works absorbs the whole of their borrowing powers, and in these times much more than that. These authorities cannot afford to make mistakes, and should, therefore, obtain the services of engineers who have an extensive and varied experience in connection with public works of a special engineering character before becoming involved in the outlay of large sums of public money. Under the recent order, local authorities can now include in their capital outlay in connection with the housing schemes, certain fees to be paid to the local Surveyors, who, as a matter of fact, have no expenses to meet in the matter of providing offices, staffs, etc., and who, whether they work, play, or attend conferences, or are sick, are paid their salaries. And it is now proposed to add to these, in some cases, a considerable sum.

It may be said that if they do the extra work they are entitled to the extra money, but most of the engineers and surveyors to local authorities generally claim that they are already fully occupied in connection with their ordinary routine work, and if that be so, some of the routine work must be neglected if they are to undertake large new works. The fact is, usually the staff is increased, and the local Surveyor, in many cases, will do very little more work, the extra work being done by the augmented staff. On the other hand, the private practitioner has to pay his staff, rates and taxes, and meet many other obligations. During the war, this type of expert has had a fairly thin time, and should have some claim to reasonable consideration. When he sees his work being taken up by public officials, and the fees that he should legitimately earn handed over to them to augment their salaries, he has indeed justification for complaint. And when, in addition to this, he is plundered of his schemes, it is time that something should be done to remedy the evil.

"JUSTITIA."

[*** The President of the Royal Institute of British Architects asks us to say that while he is always glad to see any member who may wish to consult him, whether on Institute or personal matters, he is not always able to receive them without previous notice. In order to prevent disappointment, he would be greatly obliged if members who desire an interview would be so good as to communicate in the first place with his secretary (Mr. Barrett), who will always arrange an appointment for them.]

INQUIRIES.—An architect requires office accommodation in London, or would share an office with another.

House at Carshalton.
Mr. ROBERT ATKINSON, Architect.

OLD CLAPHAM.

A Queen Anne Row to be Demolished.

WE understand that before long the Governors of Westminster Hospital will proceed with their scheme for the erection of a new hospital on North Side, Clapham Common, and unfortunately this means the demolition of one of the most beautiful rows of Queen Anne and George I houses which are now left to us in London. The decision to build on this site was made before the war, but that necessitated a suspension of such work. A few months of grace at any rate remain, during which we may enjoy the old houses, and that, we fear, is all. We suppose there was no alternative open to the Governors, but it does seem a thousand pities to destroy this lovely old row, so fine an example of the domestic architecture of the period, when there are many acres of unattractive buildings, the clearing away of which would be a delight to those who love that which is pleasant to the eye.

The houses, some seventeen or eighteen in number, form an unbroken row, and that is not the least of their charms, for no incongruous modern building breaks into it to rob it of its serene, old-world air. Alterations even have been unimportant, so that we see the row in substantially the same form as it took when the builders left it, but it now possesses all the added mellowness which two hundred years impart. All built at the same time—Grover's "Old Clapham" gives the date as from 1713 to 1720—and it is said, from designs by Sir Christopher Wren, the houses are both stately and dignified with their glowing red brick softened by time. And when, in addition, we see the Virginia creeper, which clings to their fronts, a blaze of crimson in the shortening autumn days, the old row looks its best. There seems to be a special touch of sadness then about the houses. One can fancy they know their day, like that of their wine-red mantle, is drawing to a close.

The houses, which are fairly large—some of them double-fronted—must have been at one time the residences of the principal people in the neighbourhood. But certain of them have now fallen from their high estate. Essentially they were the homes of gentlefolk, or of prosperous city merchants, and one or two have heraldic devices over their handsome old doors or gateways. Captain Cook, the famous navigator, is said to have lived in one of them, and at another the boy who was destined to be Lord Macaulay went to school from 1807 to 1812.

The houses have not the cornices which were so characteristic of the late seventeenth and early eighteenth centuries, but instead they have parapets with sunk panels, except in a few cases, where evidently another story has been added at a later date. With so many Queen Anne or early Georgian houses it is evident that the present parapet is an addition or reconstruction, the brick work showing a change, but that does not seem to be the case here, save where the roof has been altered as stated. Nor do the houses possess the broad, flat string courses between the windows, that other characteristic of the period. Instead, there is beneath the upper windows a rather strongly-marked moulded string course, or small cornice, with dentils. The windows are fairly tall, rather bigger than they often were in Queen Anne times, and in all of them the heads are slightly arched. The broad, flat window frames are set almost flush with the outer wall. One house in the row has a Venetian window, a rather clumsy piece of work, and no doubt an addition.

Very beautiful features of many of the houses are the doorways, some of them with Corinthian pilasters, and others having consoles supporting the cornices. Above the doors of two or three is the fan-tracery ironwork, which betokens the Adam influence, and shows it to be later than the houses themselves. The row stands well back from the road, with an air of dignified seclusion, as becomes the residences of "the quality," and the arrangement of the broad, shallow stone steps leading to the doorways of some of them, adds a great deal to the dignity of the entrances, and, indeed, to the houses as a whole. Much fine panelling and other work is still to be seen in some of the interiors.

It should surely be possible to preserve some of the interior woodwork and one or two of the doorways in some new building of like character, or in some place where architects could continue to see and admire this typical work of those who have gone before us.

Meanwhile, in the short interval of life which remains for these stately and beautiful houses, architects and students would do well to visit North Side, Clapham Common (the eastern end) and see these fine examples of eighteenth century design and craftsmanship.

THE PROFITEERING ACT.

THE Profiteering Act, which became law on August 19, authorises the Board of Trade to make orders applying the Act to any article or class of articles declared by the Board to be articles of a kind in common use by the public, or material, machinery or accessories used in the production of such articles. The Act will be administered by three grades of committees or tribunals — central, local and appeal. Two separate and distinct lines of action are contemplated:—Central investigation by the Central Committee into the cost and profits of production and distribution of goods to which the Act has been applied, and local investigation by local committees (subject to appeal, as provided by the Act, to appeal tribunals) into complaints concerning the prices charged and the profits made in the retail distribution of goods to which the Act has been applied. In any case in which investigation discloses actual profiteering, prosecution may follow. No action will be taken which will hamper or restrict legitimate commercial enterprise, and it is not the intention to prevent any person or company from making a reasonable profit on business transactions.

Old Clapham.

QUEEN ANNE - GEORGE HOUSE.

EXHIBITIONS OF THE WEEK.

Summer Exhibition at the Fine Art Society.—The Twenty-One Gallery.

THE Fine Art Society is giving in these summer months a general exhibition of the work of artists, some of whom have appeared in special exhibitions at these Galleries during the past season, while many others are entirely new to their walls. Among the former we may class Mr. Tom Mostyn and Mr. Hughes Stanton. Our readers will remember the brilliant show of Tom Mostyn's work last winter, which, when coming into the rooms from the dark weather without, seemed almost to dazzle the eyes with a sudden radiance of light. Mr. Hughes Stanton had an important exhibition of paintings of the Western Front; and both this and Mr. Mostyn's work were fully noticed in these columns. In the present Summer Exhibition, Tom Mostyn has three paintings, which, under the titles of "The Three Terraces," "The Gate," and "Peace," give those colour harmonies in which this artist is so successful, without, however, striking any particularly new note; most charming of these is "Peace," with the great poplar trees, turned to gold by the setting sun, outlined before the blue and purple of a distant sea.

Hughes Stanton has a landscape here of "The Sand Dunes of Camiers," and Adrian Stokes a very lovely water-piece, "The Reeds on Lake Leman"; while the unnamed painting by Marianne Stokes of a white-robed nun seated in a sunny cloister deserves mention. Other landscapes are by Annesley Brown ("The Grey Cloud") and Friedenson ("Dorset Landscape"); and Arthur Wardle's fine studies of lions and Polar bears make a telling contrast, and are good paintings in themselves.

In the inner room we find some interesting water-colour work in R. H. Kitson's Italian scenes, C. H. Hunt's "In Southern Italy," and Studies of Egypt by Lamplough ("A Citadel from the Nile") and Talbot Kelly; while Russell Flint sends one of those charming coast scenes, with figures of girls bathing, which are almost a speciality of his art, and in which the absolute freedom of the handling, the almost fluid quality of the colour, cannot be too highly commended. In the same room is a very well-selected group of small bronzes, the work of Colton, Thorneycroft, Nicholson Babb, Pomeroy, Hartwell, and Alfred Drury.

On Saturday last the first autumn exhibition was opened at the Twenty-One Gallery in the Adelphi. This is a very attractive little exhibition, all the more so from the fact that considerable freedom has been used as to subjects, which include some fine old Italian engravings by Marcantonio and Ghisi, figure studies by Burne Jones, etchings by the late Edgar Wilson, and art in its most modern expression by Walter Sickert and D. J. Ferguson. Delicious in its cool harmonies is Mr. Sickert's "L'Eglise du Poilet"; and though we frankly cannot commend Mr. Ferguson's heads of "Stability" and "Gipsy," he reveals himself a colourist in his "Saintonge" and "Green Woman." We shall return to this exhibition in our next week's notes, more especially in connection with Mr. F. L. Griggs, who is an architectural etcher of originality and merit.

Old Clapham.—AN EARLY 18TH CENTURY DOORWAY.

WAR MEMORIALS.

Prenton

About 2,000 sq. yards of land, on Prenton Hill, has been presented to the Parish Council for the purpose of a war memorial, and designs for the lay-out of the land and the memorial have been prepared by Messrs. Briggs & Thornely, FF.R.I.B.A., of Liverpool. The lay-out will be in the form of a small village green and the memorial is to be an Elizabethan village cross, upon which the names of the fallen will be inscribed, mounted upon a circular base of stone steps, 30 ft. in diameter. The whole will be surmounted by a cross, rising to a height of 30 ft. from the ground. The monument will be in Shoreham stone. The cost of adapting the site and erecting the memorial is estimated at £1,500.

Shropshire.

The Lord-Lieutenant of Shropshire is endeavouring to raise a fund of about £60,000 for the erection of a new county hospital and a memorial. A design, by Mr. George Hubbard, F.R.I.B.A., has been accepted for the memorial, which will take the form of a dome, supported by coupled columns, enclosing the figure of a soldier throwing a bomb.

Old Buckenham.

The memorial cross, designed by Sir Reginald Blomfield, R.A., and erected to commemorate those who fell in the war, was unveiled last week. The cross is stated to be an exact replica of the "Cross of Sacrifice," designed for all British cemeteries abroad.

Ilkley.

The design of Mr. J. J. Joass, of London, has been accepted by the War Memorial Committee, on the recommendation of Mr. Walter H. Brierley, of York, who acted as assessor in the recent competition. The memorial is to take the form of a cenotaph surmounted with an urn, to be erected on a plot of land facing one of the principal shopping thoroughfares. The erection of the monument and the lay-out of the ground is to cost £3,500.

Reigate Priory.

Reigate Priory, Surrey, which comes under the hammer of Messrs. Knight, Frank & Rutley, on Sept. 9, stands on the site of a religious house founded by the Earl of Surrey, who died in 1240. When the house was adapted to the current style, in the reign of Queen Anne, many of the older features, including a fine transomed window, were retained. The great oak chimney piece in the saloon was designed by Holbein. The Priory contains upwards of 35 rooms, and, with the park and grounds, covers an area of 150 acres.

Housing Schemes near Paris.

The August issue of the *Garden Cities and Town-planning Magazine* contains abstracts and lay-out plans from "Laconstitutiondel'office des habitations à bon marché du Département dela Seine," which is a report of the proceedings of the Department from July, 1916, to December, 1918. Mr. Montagu Harris, who has abstracted the report, states that the garden city movement in France has been successful without assistance of any kind from the Government or local authorities, and outlines are given of the schemes in course of preparation at Plessis-Robinson, Malabry, Champigny, Suresnes-Rueil and Stains. The report, says Mr. Harris, is full of excellent material, and the work of the Department will be watched with interest. The same issue also contains an article by Mr. Barry Parker, F.R.I.B.A., describing some housing estates in San Paulo, and some general remarks on building in Brazil.

THE DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH.

WE have often had occasion to refer to the Industrial Research Department in our columns, and its growing activities deserve every encouragement and publicity. The rank and file in this country and, indeed, the majority of our legislators also have got to be stirred up to a living interest in research and an appreciation of its importance from the aspect of national well-being and international survival of the fittest. We are still too prone to think of research as an abstract field, in which the pure scientist likes to amuse himself, a field entirely detached from the business realities of life, but this view—largely a correct one even a decade since—is wholly wrong to-day. Anyone who cares to take the trouble, can readily prove to himself that both the manufacturer and the scientist are at last really collaborating to an extent previously quite unknown, and that this common effort is growing rapidly, so rapidly that in another decade it seems likely that industries which neglect research will be left behind. At the end of July, representatives of some thirty industries met at the Board of Education under the chairmanship of the President, Mr. Fisher, to discuss with the officials of the Department various questions of common interest. We have not space to give a list of these bodies, many of which possess Research Associations, but when we state that their activities range from aircraft construction to laundering, it will be evident that no industry need consider itself beyond the benefits of research.

Sir W. McCormick, in introducing the subjects for discussion, referred to the proposed formation of a records bureau and the need for co-operation. Mr. Fleming, representing the British Westinghouse Co., expressed the view that valuable information of a fleeting kind often arose in conducting researches, and that the side lines of research should be collected and records of useful results kept. He also thought that the proposed Bureau might do a good deal towards educating the public, and another important aspect was the tinkering up of different workers which the scheme might render possible. Another speaker referred to the great dearth of technical libraries in this country, and he paid a deserved tribute to the Patent Office Library as the only place in this country where many important industrial journals can be seen. Sir Frank Heath, replying to the various points raised, explained that results communicated to the Department would be divided into two sections, confidential results which would remain the property and secret of the firm submitting them, subject to any agreed terms for their transmission to others, and results open to inspection by anyone interested. He also made it clear that every Research Association should have its own recording organisation, while the Department would act as a central record office and clearing house. We feel that all professional and trade bodies interested in technical problems should keep in touch with these recording proposals as a new and very valuable means of gaining the latest information upon their own problems, and we hope that some scheme of abstracts, on the lines for so long adopted by the Chemical Society, may be evolved later on out of this policy.

As an outcome of three years' work, there are, at present, nine Research Associations at work; eight are about to start, twelve or more are in process of formation. As soon as the utility of those bodies becomes more generally apparent we imagine that the increase will take place in geometrical progression. We are only now touching the fringe of this matter, which we hold is vital to our national welfare. Our conservative and rule of thumb methods cost us many thousands of valuable lives during the war, and were very nearly our undoing. They served in the past when we had to deal alone with competitors far behind us in industrial development, but they will not serve now, and we should remember that every new industrial piece of knowledge is a national asset, increasing the national wealth, generally decreasing cost, and certainly strengthening the walls of national security.

The Report of the Committee of the Privy Council for Scientific and Industrial Research for the year ended July 31, 1919, is especially interesting as dealing with the abnormal year of the change over from war to peace. The report is divided under three main headings, viz., the progress made in the establishment of Research Associations, the organisation of research for national purposes, and the developments that have taken place in the conduct of researches initiated either by other bodies or individual workers. It is stated that a marked change is taking place in the attitude of industry towards scientific research, and that both masters and men are beginning to recognise its vital importance.

At the National Physical Laboratory, Teddington, investigations into the qualities of home-grown timbers, with particular reference to their suitability for the purpose of re-afforestation, were conducted by Prof. Percy Groom and Prof. Dalby, who submitted interim reports early this year. Research is to continue along the present lines, but a much larger number of tests are to be made. It is hoped that a full report will shortly be available. Two kilns have been erected in connection with research into the seasoning of timber, and work was commenced in May this year. A considerable amount of preliminary investigation has been carried out by Mr. W. Douglass May, on the capacity and control of the kilns with regard to air supply, heat and humidity, but some time must elapse before the equipment is sufficiently complete to enable the research to be conducted on satisfactory lines.

The work of the Building Materials Committee, under the chairmanship of Mr. Raymond Unwin, is nearing completion, and it is hoped that a report will be presented before the end of the summer. Mr. Barker's research on kitchen ranges has been particularly interesting and surprising, and it is hoped to indicate soon the direction in which the information obtained may be made available for use in connection with the housing schemes. The investigations which are being carried out include the following: Tests on floors, at the British Fire Prevention Committee's testing station; tests on thin walls, by Dr. Oscar Faber; investigations into the properties of mixtures of lime and cement, at the L.C.C. School of Building; tests on the transpiration of gases through walling materials, at the National Physical Laboratory; and a small research into the properties of slag and coke breeze as aggregates for concrete, by Messrs. Harbord & Riley. It is hoped that the economy effected by the improvements which it is hoped to secure in the construction of kitchen ranges, will alone save far more than the annual cost of the activities of the Committee. The Committee has recommended the Council to establish a Building Research Board, to supervise the investigations already undertaken by the department, and to attack the many problems involved in a systematic manner. The matters the Committee has in mind need for their elucidation the services of the engineer, the physicist, the chemist, the geologist, the architect, and the builder. In the erection of the modern house of moderate size, between thirty and forty different kinds or types of materials are used, and there is adequate scientific knowledge of, perhaps, half-a-dozen. As the Report states, a sound knowledge of the nature and use of building materials is still greatly to seek, and the possibilities of economy by means of competent research are obvious. On the recommendation of the Committee, in April this year, Mr. J. N. Vowler made a start with an investigation into problems arising from the use of earth and chalk as building materials. The research is to be carried out at the L.C.C. School of Building, and the preliminary equipment now being nearly complete, the investigations should be in full swing in a few weeks. At the suggestion of the Board of Agriculture, it has been arranged to erect a series of five experimental cottages at Amesbury. The cottages are to be built of local materials. The Department will be responsible for the design of the cottages and for all items of an experimental nature occurring in their erection. Mr. W. R. Jaggard, F.R.I.B.A., will act as architectural consultant to the Department, and it is anticipated that the organisation of the research into earth materials will be available in this connection.

The results of the investigations of the British Fire Prevention Committee, mainly with regard to the fire-resisting properties of concrete and reinforced concrete, will be available for the building season, 1920. Fire tests with seasoned structures have been carried out at the Committee's station, and it has been ascertained that many concretes popularly used and specified by competent authorities are entirely valueless from the fire point of view; whilst others, scarcely used in general work, though readily available and cheap, as, for instance, various artificial aggregates, have given highly satisfactory results.

Handsworth Parish Church.

By the removal of the organ, the Lady Chapel at Handsworth Parish Church has been revealed to this generation for the first time. The chapel was built by William of Wickham, to whom the manor was conveyed by Edward III, and consists of a fourteenth-century side chancel, with two fine windows and an interesting roof. The tracery of the windows is being restored under the direction of Mr. F. Dighton Pearson, F.R.I.B.A.

COMPETITION NEWS.

Edinburgh.

The following awards have been made by Sir John Burnet, R.S.A., the assessor in the competition for plans for four housing schemes in the city :—

Wardie Area.—First premium (£150) : Messrs. A. K. Robertson and T. Aikman Swan, A.R.I.B.A. ; second (£75) : Mr. Charles E. Tweedie ; third (£50) : Mr. Frank C. Mears ; honourable mention : Mr. Thomas Linton.

Saughtonhall Area.—First premium (£150) : Messrs. A. K. Robertson and T. Aikman Swan ; second (£75) : Mr. C. E. Tweedie ; third (£50) : Mr. Alexander M'William ; honourable mention : Messrs. R. Fairlie, G. Reid and J. S. Forbes.

Craigleith Area.—First premium (£150) : Messrs. A. K. Robertson and T. Aikman Swan ; no second or third premiums awarded.

Willowbrae-road Area.—First premium (£150) : Messrs. A. K. Robertson and T. Aikman Swan ; second (£75) : Mr. C. E. Tweedie ; third (£50) : Messrs. R. Fairlie, G. Reid and J. S. Forbes.

The Housing and Town-planning Committee, however, decided that no one firm of architects, should be appointed to carry out more than two schemes, and made the following appointments :—Wardie and Craigleith Areas : Messrs. A. K. Robertson and T. Aikman Swan ; Saughtonhall Area : Mr. Charles E. Tweedie ; Willowbrae-road Area : Messrs. Fairlie, Reid and Forbes.

The plans are on exhibition at the Royal Scottish Museum until September 7.

Ilkley.

Mr. Walter H. Brierley, the assessor in the competition for a war memorial for the town, has made his award in favour of Mr. J. J. Joass, 10, Old Burlington-street, London, W.

Ideal (Labour-saving) Home.

In connection with the Ideal Home Exhibition, to be held at Olympia from February 4 to 25, 1920, the *Daily Mail* is offering prizes for designs for a "labour-saving" house, and architects are invited to submit designs for houses primarily designed for labour-saving. The prizes are £250, £100, and £50. Sending-in day, October 4. Further particulars may be obtained from the Secretary of the Competition 130, Fleet-sreet, London, E.C. 4.

Oxford.

FOR THE CITY COUNCIL.—Designs for the lay-out of a congested area in the centre of the town. Mr. H. V. Lanchester, F.R.I.B.A., will act as assessor. Sending-in day, October 20. Further particulars from the Town Clerk. (See our advertisement pages, August 15.)

Bridlington.

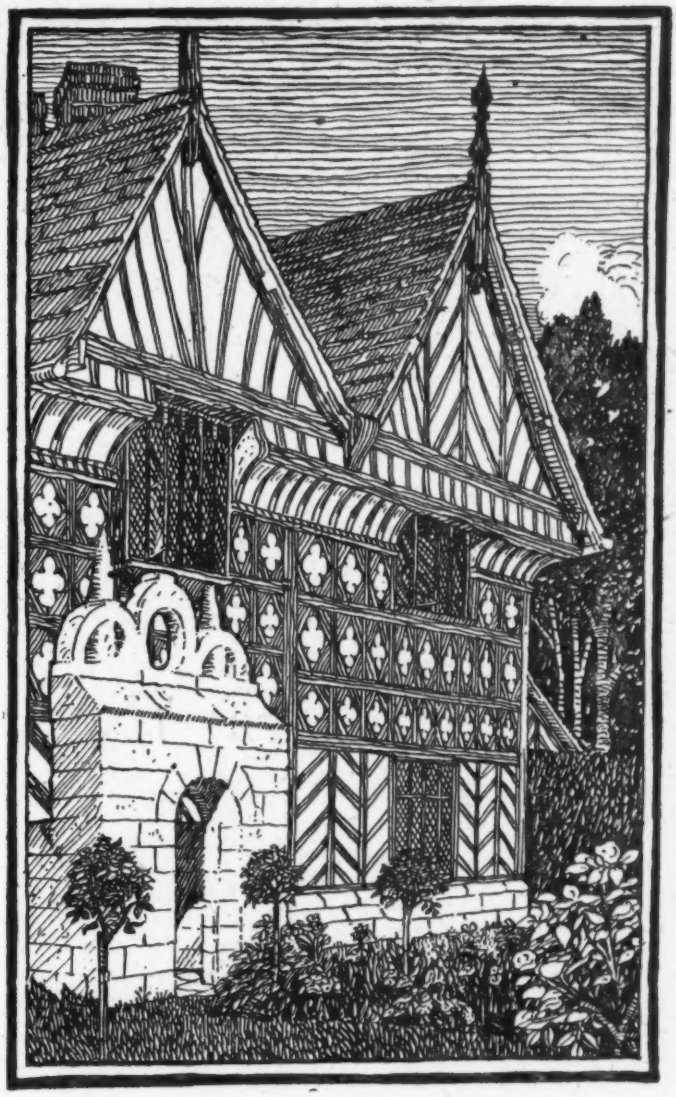
FOR THE WAR MEMORIAL COMMITTEE.—Designs for a war memorial. Premiums £100 and £50. Sending-in day, September 30. Particulars from the Secretary, 79, Quay-road, Bridlington. (See our advertisement pages, June 20.)

Leamington Spa.

FOR THE WAR MEMORIAL COMMITTEE OF THE TOWN COUNCIL.—Designs for a war memorial. Premiums £100, £50 and £25. Mr. H. V. Ashley, F.R.I.B.A., of 14, Gray's Inn-square, W.C., will act as assessor. Further particulars from the Town Clerk. Sending-in day, October 15. (See our advertisement pages, July 25.)

Army Huts as Schools.

The Government has decided that huts required by local education authorities for educational purposes shall be sold to them by the Surplus Stores Disposal Board at a discount of 33⅓ per cent. below the valuation of the property, as determined either by the Disposal Board or by an independent valuer agreed upon between the Disposal Board and the local education authority This concession applies also to public institutions of higher education provided by a local education authority.



Speke Hall, Lancashire.—From a drawing by MR. LEONARD BARNISH, A.R.I.B.A.

TESTING MATERIALS.

SOME interesting topics were discussed at the annual meeting of the American Society for Testing Materials, held at the end of June, among which may be mentioned a paper read by Mr. Buck, upon the influence of small percentages of copper in retarding the corrosion of steel. Results from experiments with basic open hearth steel showed that steel, containing 0.03 per cent. of copper corrodes only 60 to 70 per cent. as fast as that containing 0.01, and it is suggested that this power increases with the percentage of copper, 0.15 per cent. being regarded as the desirable minimum.

Turning to the committee work, standard tests on absorption, compressive strength and modulus of rupture, are suggested for specification purposes, bricks being classified as vitrified, hard, medium, and soft for this purpose. Another report concerns the use of gypsum, which is employed, not only for plasters, but for certain constructional purposes, and a committee has been attempting to prepare a suitable specification for this material.

The American Concrete Institute has something to say on the subject of stuccos. Failures are frequently to be attributed to gauging the upper coats strong, and laying these on weaker material. Protection of each coat when laid, from the effects of sun and frost, by means of tarpaulins when necessary, is also recommended. Some weak mixtures, even down to 1 of cement to 7 of aggregate, have given good results in tests, and it is stated that mixtures richer than 1 to 3 should not be used on account of the tendency of rich mixtures to crack. Hydrated lime is said not to improve the quality of stucco, though it makes it easier to work. The composition of each coat may be the same, but if variation is desired the successive coats should become weaker. The waterproofing problem consists not so much in overcoming permeability as in reducing absorption, but even absorption is better than crazing produced by the use of too rich a mixture or faulty application. For the render coat, the function of which is to form a bond to the work on which it is laid, and to support the upper coats, hair or fibre, is recommended, and this coat should be about ¼ inch thick over the face of lathing. The second coat should fill all uneven places, and will usually have to average half an inch in thickness. The final coat, which is purely decorative, will be more likely to retain or improve its appearance if rather lean in composition. It will require to be ⅛th to ¼ths of an inch thick. The application of the second coat within 24 hours of the first is recommended, but the final coat should be left as long as possible to enable any shrinkage defects to previously show themselves, and should then be applied on a damp, but not saturated, surface.

The Devastated Area in France and Belgium.

The French Red Cross organisation is anxious to bring home to the British public the real state of affairs in the devastated area of Northern France and Belgium. With this object in view it is arranging a series of personally-conducted tours through the region, in which a number of representative men will be the guests of the French Red Cross. The Royal Institute of British Architects has been approached, and it has been arranged that the President, Mr. John W. Simpson, Sir Banister Fletcher, and members of the Council, will start on a tour leaving London on September 4.

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ILLUSTRATIONS.

Work of Ecole des Beaux Arts Students, Paris.

We give this week two illustrations from the admirable collection of drawings shown at the recent interesting exhibition at the Society of Architects' premises, Bedford-square, of Ecole des Beaux Arts students' work, Paris. The exhibition was noticed in our issue of August 8. In this connection, we may give an abstract of a letter which Mr. Arthur Davis, F.R.I.B.A., Patron of the first Atelier of Architecture in London, received from Mr. Harvey W. Corbett, of New York, who holds many distinctions in American art; he is also an Associate of the Department of Architecture at Columbia University. In the course of the letter, he says that he read the recent paper by Mr. Davis with great interest, and thought it the most comprehensive description of the principles and method of the Ecole that he has seen. He congratulates Mr. Davis on his clear analysis of the benefits and faults of the Beaux Arts system. The Ecole system is the basis of all educational work in the United States, not only through ateliers established in every large city, but in all universities in which an architectural course is given. Practising architects, all former Eleves de l'Ecole, are actively engaged in this educational work. Monthly exhibitions of drawings sent in from all parts of the country are held in New York, and judged by a selected jury of men who are leaders in the profession. As a result of this Beaux Arts' influence, a body of men is being formed in America, who have a sound foundation in the principles of rational planning, and architectural composition. These men are taught to view their problems from the broadest angle; they do not survive this system of education unless they have demonstrated genuine artistic ability. They regard themselves as artists, and would consider it a reflection on their professional position to be considered merely professional or business men. Yet they by no means lose sight of the value of good economic construction and efficient business management. He mentions this only because he knows how very important a part the Beaux Arts method of education has played in attaining this result. He is confident that only good results would come from incorporating the principles of the Beaux Arts School into the British system of architectural training.

While in America the British architect is regarded as the master of "domestic" design, and his work in this field is studied for inspiration and guidance; they do not as yet turn to him for suggestion in the field of monumental or commercial work. It may be the reason for this is due to the lack of training along the lines in which the Ecole is unusually proficient. He sees no reason why a combination of the Ecole system with our present methods should not make us leaders in both fields. We are certainly not lacking in excellent examples of monumental work at home, and his only surprise is that in our modern work we have not taken inspiration more directly from these examples.

Three Houses in Frognal Lane, Hampstead. N.W.

These houses occupy a well-wooded and exceptional site in a favourite part of Hampstead with south aspect, and were erected in 1913 and 1914, by the late Mr. George W. Hart.

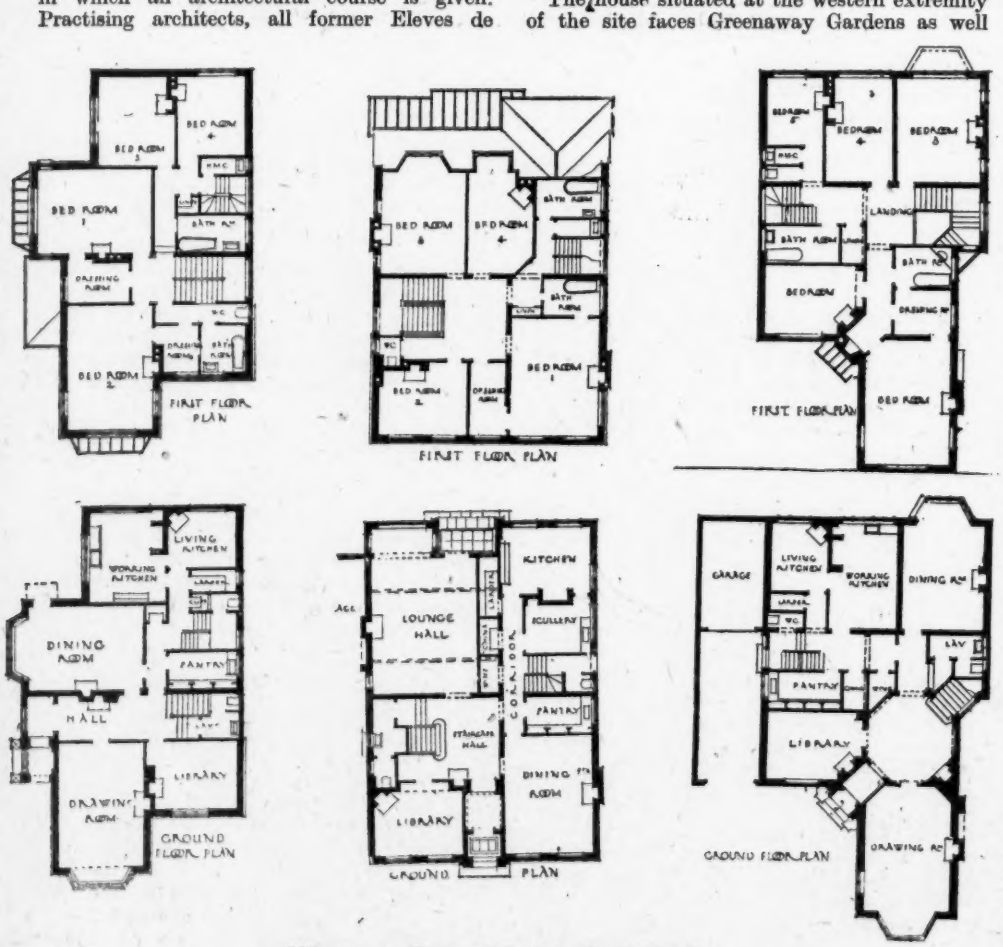
The house situated at the western extremity of the site faces Greenaway Gardens as well as Frognal Lane. The dining room is 23 feet by 15 feet, faces west, and has a garden door in the north wall. The drawing-room is 25 feet by 15 feet with due south aspect. The library also faces south, and is 16 feet by 12 feet. The hall is a wide corridor, and the staircase is obscured from observation from the main entrance. There are seven bedrooms, dressing room, and two bathrooms. The garage is situated at the north end of the garden. The purchase price was £3,200, with a ground rental of £50.

The centre house contains some adaptable facilities, such as either a large drawing room or a billiard room, and general lounge. The dining room is 21 feet by 15 feet, accommodates a party without crowding, and has direct service. There are seven bedrooms, dressing room, and two bathrooms. The purchase price was £3,300, with £42 ground rental.

The house occupying the eastern part of the site is entered under the main chimney stack. The lobby gives access to an octagonal hall, 15 feet diameter, with staircase on main axis. The drawing room is 26 feet by 15 feet, and the library 18 feet by 12 feet, both these rooms having south aspect. The dining room is 22 feet by 15 feet, and has an entrance to the garden. There are eight bedrooms, a dressing room, two bathrooms, and a garage.

The purchase price was £2,975, with a ground rental of £38.

CYRIL A. FAREY.



Houses at Frognal Lane, Hampstead.
MR. CYRIL A. FAREY, Architect.

Penn House, Bucks.

The additions and alterations to Penn House, Bucks, are shown in a drawing which was exhibited in the recent Royal Academy Exhibition. The architect is Sir Reginald Blomfield, R.A.

THE FEDERATION OF CIVIL ENGINEERING CONTRACTORS.

THE Federation of Civil Engineering Contractors, of which practically all the civil engineering contractors in Great Britain are members, has recently been formed, with the main object of acting collectively through an elected council in relation to the professional institutions and public authorities, and to deal with labour organisations in regard to hours of work, rates of pay, and all other matters appertaining to the employment of labour. This latter work will include a participation in the work of Conciliation Boards which may be already constituted, or whose constitution is now in contemplation. The Federation will represent interests which are at present entirely unrepresented by any existing association of building or public works contractors. The first Council, elected at a general meeting on June 30, is as follows:—President: Viscount Cowdray, P.C.; Vice-Presidents: Sir John Jackson, C.V.O., and Mr. James Railton, C.B.E. (Topham, Jones & Railton, Ltd.). Members: Messrs. H. C. Baldry (Baldry, Yerburgh & Hutchinson, Ltd.), H. F. Brand (Charles Brand & Son), C. R. Hemingway (Logan & Hemingway), T. Wilson Lovatt (Wilson Lovatt & Sons, Ltd.), Gerald G. Lynde (Edmund Nuttall & Co.), T. Malcolm McAlpine (Sir Robert McAlpine & Sons), T. Tyson Middleton (Walter Scott & Middleton, Ltd.), J. Harry Price (John Price & Sons), and Sir E. W. Moir, Bart. (S. Pearson & Son, Contracting Department). The secretary is Mr. E. J. Rimmer, and offices have been taken at 40, Broadway, Westminster, S.W.1.

The "Cost-Plus" System in America.

A Bill has been introduced into the United States Senate with the object of prohibiting (1) the use on Government work of a form of contract based on the cost of materials, labour, &c., plus a percentage of profit, and (2) the payment of commissions in connection with the awarding of Government contracts. No exception is being taken to the second provision, but the prohibition of the "cost-plus" system is being strongly opposed by contractors.

OBSERVATIONS AND SUGGESTIONS.—VIII.

By W. R. LETHABY.

THE BEAUTY OF STRUCTURES.

OUR histories of building are for the greater part like the old books of Natural History, which were written before a classification by typical structure had been developed. All is a chaos of confusion, in which it seems impossible to discern more than whim and accident. The best approach to a history of structural advance is Choisy's, and I should like to begin this little paper by recommending all students at least to examine the vivid diagrams of his books. The clearness and vitality of his illustrations may even suggest what like qualities might be in real buildings, although it is always difficult to jump from drawings to the solid. Still, it is gradually emerging in the history books that all schools of "architecture" were engaged in exploring the implications and possibilities of certain building principles. Greek temple builders were eagerly finding out what might be done in the art of balancing stones without mortar. Theirs was the art of *great-block masonry*. Roman building was the art of *concretion*. The Byzantine system was the further exploration of what might be done in *dome balancing*. Gothic cathedral building was experimenting with what might be done with little blocks when cemented together: it was the art of *mortared masonry*. Principles consistently worked at carry very far, and such a method of experiment sets up an organic growth which we often speak of as the life of art. This embodiment of principle is the very heart of noble building; without it, all the little embroideries and etiquettes and ornaments are irrelevant trivialities.

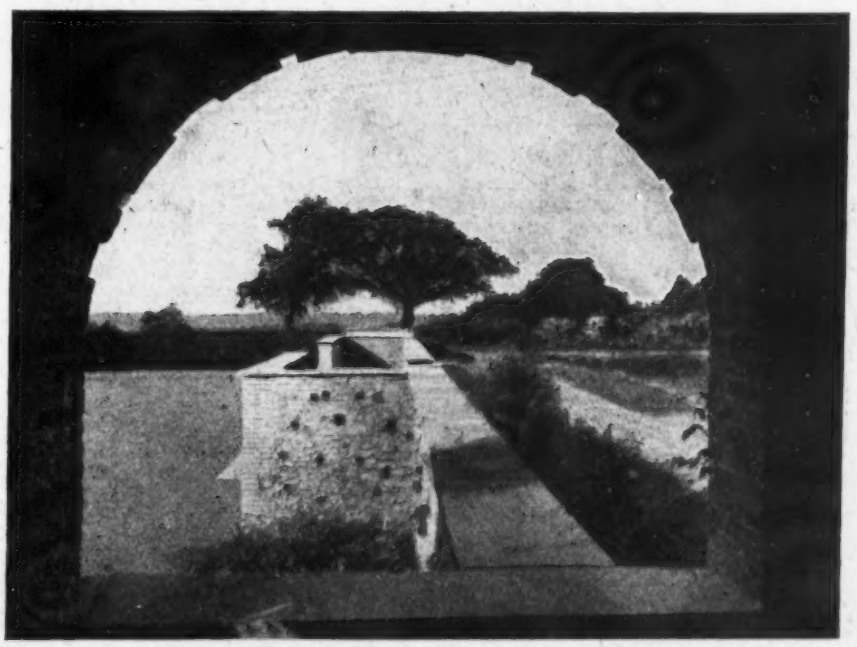
All my words will be in vain unless some phrase chances to suggest a way of thought to younger men. It is a way of thought, a way of seeing, a "theory," which we so badly need in the present time, and I am anxious to get young students early to think of facts, facts, facts. What must be right, what must be reasonable, what must be interesting? The final test should hardly be "what is it we really do like?" But even on this low ground, if we took the trouble to clear up our minds so as to be certain of what we "liked," I believe we should hardly go wrong. As it is we think we like what the teacher supposes he ought to like, and nobody knows. It is really a tragedy that gifted young men, who suppose that they have sceptical minds, too, should be swept along by the herd enthusiasm of the "ateliers," without asking whence, where or why? If only the student would take a 'bus to Liverpool Street, along Holborn and back by the Strand, and looking in the faces of the buildings he passes, question them as to the meaning of it all, I am sure he would soon find that the masks of style are essentially dull and yawn begetting, and that what really interested him, even to excitement, was keen thought, clear structure, skilful fitting, force, adaptation, adjustment. Go to such remarkable make-believe buildings as Inigo Jones's Whitehall Palace and Street's Law Courts, and make up your minds once and for all. The skills of these things are indeed amazing; but they are the skills of play actors grimacing without a language. They do not speak to our affection, nor to our intelligence, but only to a sort of amazement that these things should be so, and to appreciation on a secondary plane—for taking them for granted they are wonderfully well done.

On the whole, I will confess, I think I have found out that such things dull and tire me. When, however, I happen to see a structure vividly shaped to fulfil a purpose and confer a service, I know I am stirred in quite a different way. I forget the tired picture-gallery feeling and the crabbed, critical temper, and in a moment wake to attention, understanding and sympathy—structure is life, energy, mystery, originality. Structural beauty does not necessarily imply great effort and vast scale, although where these exist they are valuable—we may find it in a penknife or a matchbox. But is not this kind of beauty mechanical, it may be asked? "Mechanical" is only one of the question-begging words which we use to suggest more than they mean, it shades off into thoughtless and soulless. Now, it is the office of imagination, soul and poetry, when embodied in structures, to make them properly "mechanical." The animal skeleton and its flesh too, the tree, and the honeycomb are only perfect structures—there is no "ornament" in nature. Look, then, for organism, life, structure, fitness, finish; do not believe that science and sense must be put aside to attain art and poetry, or that architecture is "all beer and skittles."

The last architectural publication I looked at had plans of the tomb of the Empress Helena, the mother of Constantine, built in Rome about the year 330 A.D. It is not big, but so right in its "mechanical" construction that it reaches perfection in its kind. It is circular, with a ring of thick wall two storeys in height, and a dome, all in brickwork. In the lower storey eight large recesses are taken out of the wall to enlarge the interior area. On the upper storey as many large niches are recessed in the external surface of the wall. These recesses leave parts of the walling separating them not much greater than buttresses, and the windows are in the curved recesses. In the late Professor Guadet's published lectures of his Beaux Arts course he has most interesting accounts of the Pantheon and St. Sophia, which clearly bring out the fact that those are just building structures "mechanically" perfect, and fine because of their fitness. Our problems are not so simple and self-contained, they are often at once small and complex, and involve the petty questions of the average dwelling house, shop and factory. Yet the same rule applies all the more, for order and simplicity must be brought into what is confused.

Mine is but one of many voices, and why should I expect to be believed? I don't really. I only hope to make a contribution. I will only say, so far as may be, so far as my words seem convincing—think of building, of perfecting structure and improving service.

We know all about proportion and design; nothing fresh or living can be done as style. The situation has changed, for the last generation had hopes in their powers. Now, mercifully, that is gone and everyone really knows that style-design is faint to staggering. Yet the possibilities are most exciting for those who will venture to know the truth; they may begin a true development by setting to work to perfect our ways of building. I doubt if there is any occupation which should call out a truer ambition than the ever necessary art of building. Moreover we might be the first to become national builders, and thus lead the world. I don't want all the thinking and adaptation to be done in America and Germany. Life, structure, utility, these three are phases of the only architectural beauty possible to us in a scientific age.



Garden from Lea House, the Road Farm, Chertsey.
Messrs. R. ATKINSON and the late G. L. ALEXANDER, Architects.

HOUSING AND TOWN-PLANNING NOTES.

Suggested Housing Loan Campaign.

The National Housing and Town-planning Council, in a memorandum embodying the report of an interview between Sir A. Y. Symonds, Assistant Secretary to the Ministry of Health, and the Council, suggests that a committee should be set up for the purpose of raising loans for housing puposes, and that "Housing Weeks" should be held, when model houses, made of laths and canvas, could be exhibited and used for the raising of loans in the same manner that tanks were used to raise war loans. The Council condemns the proposal that the new houses should be let at the highest rentals obtainable, and is of the opinion that such rents should be charged as the workers in the district could afford to pay.

Glasgow Housing Exhibition.

In order to secure increased accommodation for the Housing and Health Exhibition, to be held from October 8 to November 1, the Corporation has arranged to take possession of the building adjoining the Kelvin Hall of Industries, where the main exhibition will be held. It has been decided to erect two model cottages in this annexe.

Standard Specification for Housing Schemes.

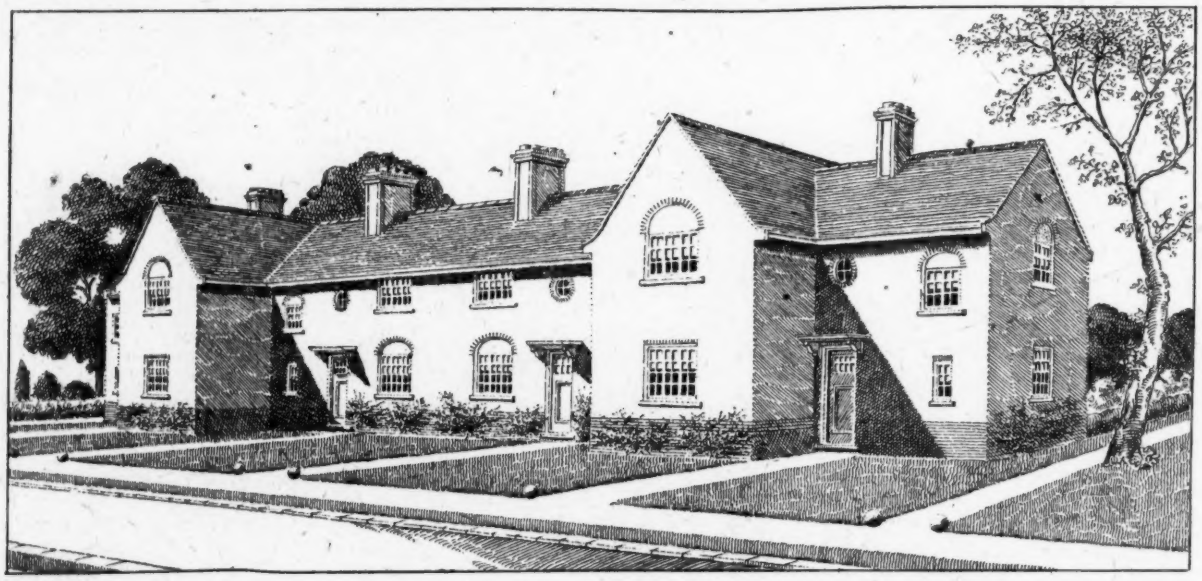
The Ministry of Health has prepared a standard form of specification (D. 82), and all State-aided housing schemes which have not gone to tender must comply with this form. Except where variations from this standard form are rendered desirable by local conditions, the Ministry will not be prepared to approve of schemes which show deviations from the form. The specification states that timber should not be used where less expensive materials can be used, and every phase of the erection of cottages is dealt with.

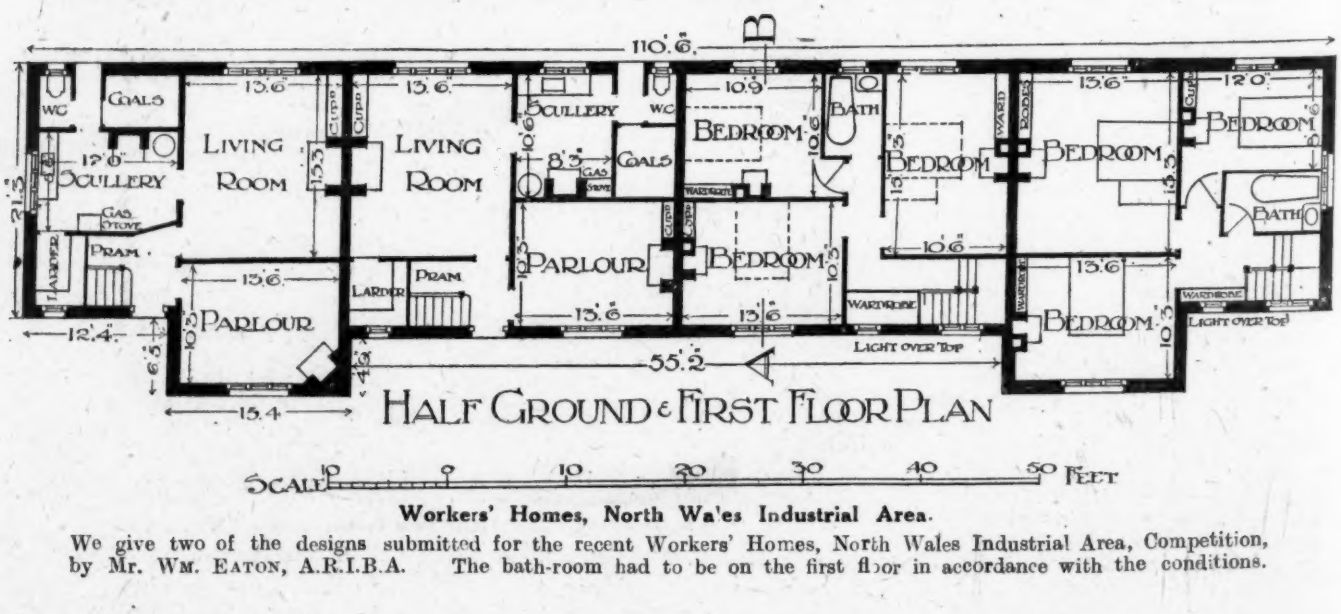
Progress of Housing Schemes.

The *Times* has collected reports regarding the present position of housing schemes in various parts of the country. In nearly every case progress is said to be slow, and among the reasons given are the scarcity of labour and materials, and delay caused by the methods of the Government Departments concerned. At Coventry, the only houses being built are about 100, commenced last year by the Ministry of Munitions, and the Corporation has not gone beyond the stage of inspecting tentative contracts. Many schemes have been submitted in Cornwall and Devon, but no designs have yet been invited. At a recent meeting of the Paignton Town Council, it is stated that the whole business was manacled with red-tape. The Plymouth Corporation has two schemes, neither of which has yet been approved. There are several hundred Army huts near the town, but none have been purchased by local authorities. It is estimated that 10,000 houses are required at Edinburgh, and plans have been selected for 3,500. Work has been commenced in one area, and sanction to three other schemes is expected shortly. Official estimates place the number of houses required in Glasgow at 50,000, and the first instalment of the schemes, which are in an advanced stage of preparation, aims at the erection of 4,600 houses. At Liverpool, a start has been made on the scheme for the erection of 14,000 houses, and it is hoped that 1,000 new houses will be ready in six months' time. About 500 huts are to be acquired at the Knotty Ash Camp, and it is proposed to convert them into dwellings, and to transform the camp into a garden city. It is anticipated that building operations will commence at Newcastle at the end of September, and besides the Walker Estate, negotiations are in progress for the acquisition of two other sites. Tenders are being invited for the erection of 350 houses on the Stockhill-lane Estate, Nottingham, and 45 houses are to be built on another estate. The Stoke-on-Trent Corporation has acquired two sites, for the erection of 800 houses, out of the 2,000 estimated to be required, and it is hoped that building will begin soon. At Sheffield, 231 houses are in course of erection, and three schemes are already in progress. Great difficulty is experienced in obtaining labour, and it is complained that many bricklayers are engaged on the erection of picture palaces and other non-essential work. Concrete is being used in the construction of the buildings, but none of the houses are so far being built entirely of concrete.

London and the Housing and Town-planning Act.

The Ministry of Health draws attention to the application of the Housing and Town-planning Act to London. By Section 41 of the Act, the sphere of responsibility of the several authorities for the purposes of Part 3 of the Housing of the Working Classes Act, 1890, is more clearly defined. The term, "the County of London," as used in the section, excludes the City of London, and the term, "the administrative County of London," includes the City. The section makes the London County Council the Part 3 authority so far as regards the





Workers' Homes, North Wales Industrial Area.

We give two of the designs submitted for the recent Workers' Homes, North Wales Industrial Area, Competition, by Mr. WM. EATON, A.R.I.B.A. The bath-room had to be on the first floor in accordance with the conditions.

provision of houses on sites outside the administrative county, while the Council of a Metropolitan Borough will be the Part 3 authority so far as regards building on sites within the Metropolitan Borough. This is, however, without prejudice to any rights, powers and privileges of the London County Council in regard to any lands, buildings or works provided or carried out by the County Council before the passing of the Act. The section also enables the London County Council, with the approval of the Ministry, to carry out a scheme within a Metropolitan Borough where the houses are required to meet the needs of districts lying outside the Metropolitan Borough. Subsection (1) (c) authorises the transfer of powers from one authority to the other by order of the Minister of Health. The position of the Common Council of the City, as the Part 3 authority for the City of London, is not affected by the new Act, but Section 41 (3) enables the Common Council and the London County Council to enter into an agreement for carrying out a Part 3 scheme.

The position as regards the local authorities, for the purposes of Part 1 and Part 2 of the Act of 1890, is not affected by the new Act. The London County Council and the Common Council of the City may, however, enter into an agreement, under Section 41 (3) for carrying out a Part 1 scheme, as in the case of a Part 3 scheme. Section 41 (2) provides that any loss incurred by the Council of a Metropolitan Borough in carrying out a scheme to which Section 7 applies shall be repaid to them by the London County Council, and that any payments so made by the L.C.C. shall be treated as part of the expenses under their own scheme, and shall rank for financial assistance from the Exchequer. The object of this sub-section is to secure that a Metropolitan Borough shall not be called upon to contribute a penny rate both for their own scheme and for the L.C.C. scheme.

Section 26 extends the by-law making power of the local authority with respect to houses divided into separate tenements. These by-laws (except those for securing stability, and the prevention of and safety from fire) will, as regards the County of London, be made by the London County Council (in supersession of existing by-laws), and enforced by the Metropolitan Borough Council, and will, as regards the City of London, be made and enforced by the Common Council. The by-laws for securing stability, and the prevention of and safety from fire will be made and enforced by the L.C.C. as regards the whole of the administrative county.

Public Utility Societies' Failure.

The annual report of the Public Works Loan Commissioners gives particulars regarding two cases of advances to public utility societies for the erection of houses, in which the instalments due in repayment fell into arrears. The Board, on October 21, 1912, granted to the Swansea Valley Co-partnership Housing Society, Ltd., a public utility society, a loan of £37,246 to erect houses for the working classes at Clydach, Glamorgan, and Ystradgynlais, Brecon, such loan to be secured on a first mortgage of the property, and to be repaid in 40 years with interest at 3¾ per cent. per annum. On June 17, 1913, the Board advanced to the society the sum of £2,950, on the security of 18 houses at Clydach, and on February 17, 1915, the sum of £4,209, on the security of 22 houses at Ystradgynlais. In June, 1918, the society fell into arrear in making repayments due under mortgages, and owing to the closing down of the collieries near Ystradgynlais, a number of the cottages were vacant, and there were not sufficient funds in hand to make the payments. The Board entered into possession of the property on August 29, 1918.

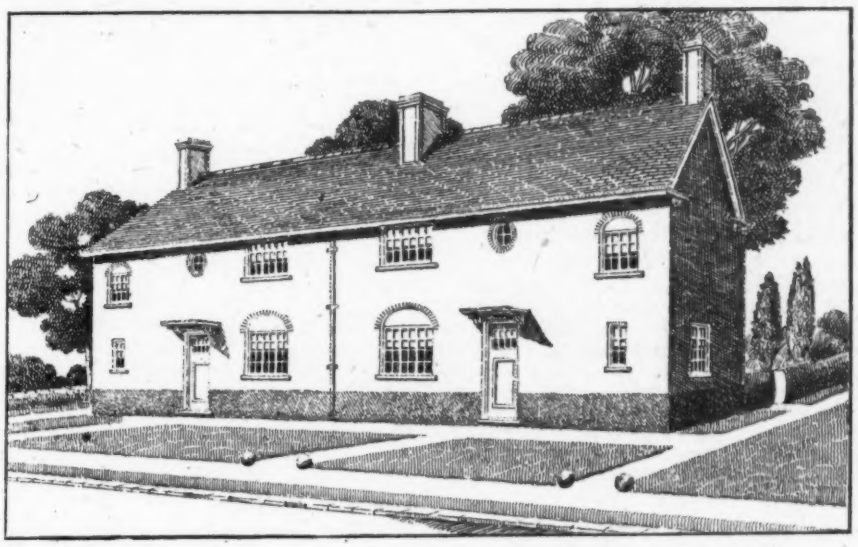
In the case of the New Eltham Cottage Society, Ltd. (in liquidation), a loan of £6,746 was granted on August 9, 1915, for the erection of 42 dwellings for the working classes, at New Eltham, Kent, for the occupation of workpeople engaged on Government contracts. The sum was advanced by instalments, between March 7 and December 27, 1916, and is secured by a first mortgage of the property erected; and the advances are repayable in 30 years from the date of each advance, with interest at 4½ per cent. per annum, by half-yearly instalments by way of annuity. At an extraordinary general meeting of the society, held August 29, 1917, a resolution for voluntary winding up was passed, the failure of the society being attributed to the liability to the contractor and the inability to raise additional capital. As the occupants were engaged upon work of national importance, the Board refrained from offering the property for sale during the war, upon certain conditions, whereby the firm employing the occupants guaranteed payment of all arrears and future payments due to the Board. All arrears of interest and principal have been paid.

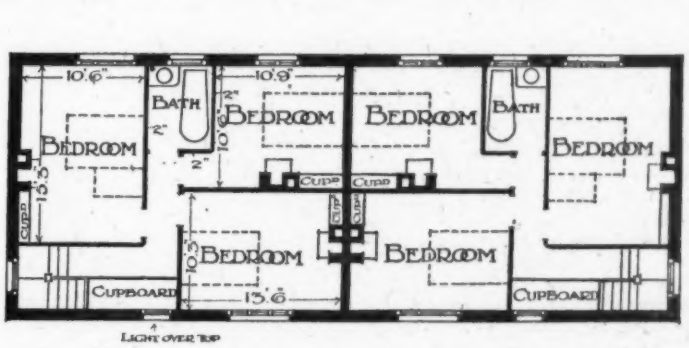
Maidstone.

The Town Council has accepted a tender of £144,665 for the erection of 162 houses in the borough, as part of the scheme for the erection of 400 houses. In passing plans for a new picture palace, it was resolved to inform the Ministry of Health that, in the opinion of the Council, the proposed building should not be erected until labour and materials were available for housing schemes.

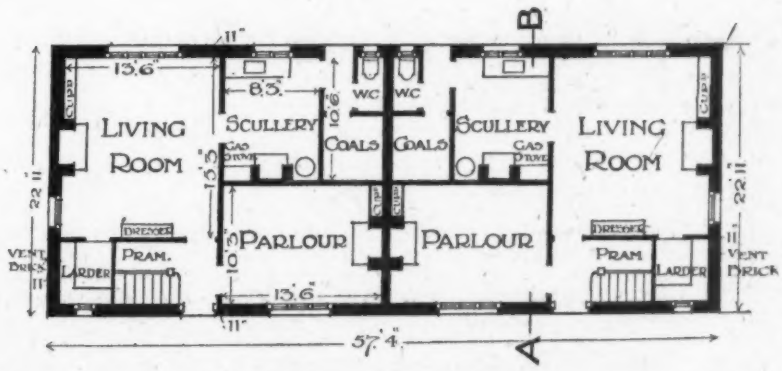
Newcastle-on-Tyne.

The Corporation expects that some of the houses on the Walker Estate will be ready for occupation next spring, and arrangements are being made for the erection of a total of 5,000 dwellings, ranging from three-roomed flats to six-roomed houses, on the Pendower, Fenham Nurseries, Gowland, Montague and Heaton





FIRST FLOOR PLAN



GROUND FLOOR PLAN

SCALE FEET
10 5 0 10 20 30

Workers' Homes, North Wales Industrial Area.
By Mr. WM. EATON, A.R.I.B.A.

sites. Efforts are being made to plan the Walker Estate as artistically and effectively as possible. The main roads will be tar-macadam, bordered with trees and grass, and each house will have a garden at back and front. The chairman of the Housing Committee has informed the *Newcastle Chronicle* that the house frontages will be as varied in design as possible, the chief aim being a picturesque effect. The six-roomed houses will be interspersed with smaller houses and flats. Tenders will be invited shortly for the erection of 100 houses, including two types of five-roomed houses, four-roomed houses and three-roomed flats. Hot water is to be laid on to the bathrooms and scullery sinks in all the houses. The living-rooms will be 15 ft. by 13 ft., and the floors will be of a red mastic substance, laid on concrete. The Committee has recommended the acquisition of the Admiralty hostel at Walker, and the possibilities of central heating will be tested.

Bisley.

The proposed housing scheme at Bisley was further considered by the Chertsey Rural District Council last week. At the previous meeting it was reported that the scheme had been held up by the decision of the district valuer that the Council should not pay more than £90 for land for the erection of eight cottages, and for which the Council had agreed to pay £225. At last week's meeting it was stated that the Ministry of Health had expressed the opinion that the Council should take action under the compulsory powers of the Housing Act, and correspondence between the district valuer and the borough surveyor was read, in the course of which the surveyor said that surveyors and architects were generally in accord with his statements that housing schemes were being hampered by Government officials. The previous decision of the Council to ask the Minstry to carry out the scheme was adhered to

Belfast.

The Corporation, at its meeting on Monday, adopted a new housing scheme, providing for 5,000 houses. It is expected that 1,500 will be erected during the next twelve months, at a cost of £1,000,000.

Dublin.

The Corporation decided on Monday to ask the body which is offering to lend £150,000,000 for Irish building purposes to deposit the sum of £1,000,000 with the Corporation's bankers. It was stated that £12,000,000 would be required to complete the Dublin housing schemes. Ald. Kelly said that the request for £1,000,000 was modest, in view of the total amount available, but it would show that the Corporation was ready to go on with the work. The Corporation was prepared to put down the security required to carry out its part of the contract, and there should be no hesitancy in asking that the money should be lodged straight away.

Nottingham.

The Corporation has purchased land, at £180 per acre, from the Duke of Newcastle for the first part of its housing scheme, and tenders for the erection of the houses, at an approximate total cost of £331,000, have been recommended for acceptance.

WEEKLY HOUSING RETURN.

The weekly return of housing progress issued by the Ministry of Health, says that during the week ended August 23, the new housing schemes submitted to the Ministry of Health numbered 228, and the schemes approved, 102. The total number so far submitted is 4,398, of which 1,310 have been approved. The approved sites cover an area of 17,481 acres, and plans have been approved which provide for 15,917 houses. The number of houses upon which building work has begun is about 8,000. In order to expedite progress, the Ministry of Health has decided to amend the form of the Compulsory Purchase Order, 1911, so as to shorten the procedure in submitting proposals for the compulsory acquisition by local authorities of land for housing. By an amendment of the regulations regarding advertisement, deposit of plans, notice to owners, and the presentation of objections, and by shortening the period necessary for the completion of each of these stages, the time has been shortened from about two months to about three weeks. In pursuance of the scheme of converting houses into flats, two thousand houses in London have now been inspected by the London Housing Board, and nearly a thousand have been scheduled as generally suitable for conversion, and in two or three boroughs the preliminary stage of these operations has now been entered upon. Flats created under this scheme should, as far as possible, be self-supporting, and should yield an economic rent. The choice of tenants will be entirely in the hands of the local authorities, by whom the flats will be taken over when completed. In a number of cases, the procedure is to make a list of applicants, which will be gone through as flats become available. This method, which was adopted on the recommendation of the Ministry, will admit of full and fair consideration being given to the claims. In view of the need for further dissemination of information on the Government's housing proposal, the Ministry some time ago invited the co-operation of voluntary organisations concerned in national welfare. A generous response was made, and as a result, 135 meetings have been arranged to take place between July 1 and November.

Details of local authorities' schemes dealt with during the week are as follows:—

Building Sites.

Schemes Submitted.—The number submitted by 68 local authorities was 224, bringing the total to 4,332, covering approximately 40,500 acres. The 224 schemes were as follows:—

URBAN.	ACRES.
Leicester (3 sites)	95.25
Maesteg (4 sites)	91.68
Tredegar	55.47
Bootle	28.61
Weybridge	19.50
Maidstone (3 sites)	17.69
North Walsham	16.40
Buxton	12.73
Plymouth	12.00
Bradford	11.83

Hampton, 8.8; Bungay, 8.7; Brecon, 7.9; Guiseley, 7.49; Failsworth, 4.16; Sherborne, 2.58; Wallasey, 2.26; Epping, .6; Carshalton, .23.

RURAL.	ACRES.
Llantrisant and Llantwit Vardre (10 sites)	380.42
Durham (4 sites)	119.13
Cowbridge (23 sites)	96.13
Oswestry (8 sites)	39.65
Aethwy (13 sites)	29.36
Lexden & Winstree (11 sites)	17.46
Easington	16.00
Chipping Sodbury (5 sites)	13.70
Darlington (4 sites)	13.46
Nantwich (8 sites)	12.50
Saffron Walden (7 sites)	11.14
Goole (6 sites)	10.75
Preston (2 sites)	10.40

Farnham (9 sites), 9.93; Wallingford (3), 8.33; Winslow, 7.92; Shardlow (2), 7.56; Ashford West (6), 7.24 Northwich (2), 7.11; Brailes (8), 6.86; Macclesfield (2), 6.25; East Preston (6), 6.21; Newton and Llanidloes (4), 5.82; St. Albans (3), 5; Ashbourne (3), 5; Blackburn (2), 4.7; Blackburn (1); Godstone (2), 4.37; Faringdon (4), 4.05; Docking (2), 4; Aylesbury, 3.5; Bridlington (7), 3.28; Keynsham (2), 3; Blofield, 2.55; Bromsgrove (2), 2.52; Congleton, 2.5; Dwyran (2), 2.35; Romford, 2.29; Crowmarsh (2), 2.25; Depwade, 2; Basingstoke (2), 2; St. Thomas (2), 2; Bakewell, 1.65; Bath (2), 1.25; Dolgelly (2), 1.25; Kettering, 1; Mitford and Launditch, .66; Wincanton, .62; Chard, .39.

Schemes Approved.—One hundred and two schemes were approved, comprising 611 acres. The total number of local authorities' schemes now approved is 1,298, representing approximately 17,200 acres. The schemes are as follows:—

URBAN.	ACRES.
Stourbridge	39.00
Abersychan	33.30
Nottingham	33.10
Letchworth (2 sites)	32.40
Tonbridge	27.66
Rochdale	24.75
Chorley (2 sites)	21.95
Wednesfield	20.02
Birmingham	19.74
Huddersfield	12.70
Market Drayton	12.05

Bungay, 8.7; Swansea, 8.1; Elland, 4.74; Tenby, 3.6; Aberdare, 1.18; Epping, .6.

RURAL.	ACRES.
Neath (6 sites)	114.70
Stroud (3 sites)	29.75
Banbury (10 sites)	18.69
Depwade (9 sites)	15.26
Thrapston (5 sites)	14.35
Ashwell (6 sites)	14.34
Buntingford (5 sites)	10.93
Chelmsford (5 sites)	10.57
Fordingbridge (2 sites)	10.50

St. Ives (3), 9.19; Northampton, 8; Bromsgrove (5), 7.84; Chipping Sodbury (2), 7.07; Maldon, 4; Newbury (3), 3.75; Cricklade and Wootton Bassett (2), 3.75; Bedford (2), 3.35; Biggleswade, 3.2; Walsingham, 3; Forehoe, 3; St. Albans (2), 2.47; Hardingstone, 2; Mere, 2; Cirencester, 2; Swaffham, 1.5; Linton, 1; Huntingdon, 1; Wangford, .73; Chard, .39.

Lay-Outs.

Schemes Submitted.—Fifty schemes were submitted by 34 local authorities, bringing the total to 728. The 50 schemes are as follows:—

URBAN.—Bacup, Bolton (2), Brierley Hill, Burnham-on-Crouch, Devizes, Downham Market, Earsdon, Kendal, Letchworth, Littleborough, Macclesfield, Maesteg (4), Maidstone (3), Nelson (2), Pontefract, Sherborne, Tewkesbury, Tredegar, Wallasey, Wilmslow, Wolverhampton.

RURAL.—Bourne, Buntingford (3), Depwade (2), Docking (2), Grantham (2), Huntingdon, Long Crendon, Petworth, Sedgefield, South Westmorland (5), Wing, Wrexham, Wycombe.

Schemes Approved.—The following 34 schemes, submitted by 27 local authorities, were approved, bringing the total to 342:—

URBAN.—Aberdare, Abersychan, Bingley, Birmingham (2), Chesham, Colchester (2), Devizes, Falmouth, Gravesend, Hemel Hempstead, Huddersfield (3), Letchworth, Market Harborough, Rochdale, Seaham Harbour, Tewkesbury, Tredegar, Weston-super-Mare, Witney, Wolverhampton.

RURAL.—Buntingford, Crowmarsh, Depwade (2), Easton-on-the-Hill, Long Crendon, Newbury (3), Petworth.

House Plans.

Schemes Submitted.—Thirty-four schemes, representing 2,790 houses, were submitted by 22 local authorities, bringing the total to 423, representing 23,928 houses. The 34 schemes are as follows:—

URBAN.—Sheffield, 752; Maesteg (4), 640; West Bromwich, 350; Pontefract, 196; Maidstone (3), 188; Blaenavon, 134; Tredegar, 100; Brierley Hill, 90; Aberdare, 72; Huddersfield, 40; Letchworth, 30; Wrotham, 30; Sherborne, 20.

RURAL.—Wycombe, 30; South Mimms (2), 30; Grantham (2), 18; Warmley, 18; Buntingford (3), 16; Docking (2), 12; Depwade (2), 10; Wing, 8; Calne (2), 6.

Schemes Approved.—Twenty-seven schemes, representing 1,705 houses, were approved, bringing the total to 243, representing 15,465 houses. The schemes newly approved are as follows:—

URBAN.—West Bromwich, 350; Bradford, 328; Abersychan, 248; Blaenavon, 134; Newport (Mon.), 100; Tredegar, 100; Bredbury and Romiley, 94; Letchworth (2), 60; Chester, 54; Rochdale, 52; Birmingham (2), 44; Southend-on-Sea, 20; Aberdare, 16; Witney, 14; Tewkesbury, 12; Weston-super-Mare, 7.

RURAL.—Newbury (3), 20; Depwade (2), 18; Easton-on-the-Hill, 14; Hemsworth, 8; Crowmarsh, 6; Buntingford, 6.

TOWN PLANNING AND COTTAGE CONSTRUCTION.

THE following papers on housing and town-planning schemes, of which we give extracts, were prepared by a Special Committee of the Institution of Municipal and County Engineers, and were read at the Annual Meeting of the Scottish District of the Institution.

After-War Housing: The Choice of a Site.

One of the most important factors in the success of any housing scheme will be the judicious selection of a site. The position will be largely governed by local circumstances and so placed in smaller towns as to be near the public works or business part of the town, and in larger towns, where means of conveyance will be convenient. Should the site under consideration be in the vicinity of public works, care should be exercised that the prevailing wind will carry the smoke from the works away from the houses. In a large scheme, playing fields and a belt of trees might be placed to form a screen between the houses and the works. Care should be taken that no ground is chosen that would be more valuable as a site for public works. Suitable ground for open spaces, playing fields, &c., should form part of any site, the size and nature of which would be governed by local conditions. The utilisation of existing roads should be considered, as the levels might not permit of the construction of suitable gradients for the roads without entailing great expense, while the existence of roads, if they could be made to suit the lay out, would be of distinct advantage to the scheme. Another point which should be considered is whether the site is within reasonable distance of a railway; advantage might be taken of the railway for the economical delivery of material for the buildings, roads, &c., so that the bulk of the material might be deposited where required, and thus save carting or undue wear on the new roadways.

The size of sites will largely depend on whether the houses are mostly required in one district, or whether they would be better if distributed over several districts. Large sites lend themselves to a more comprehensive lay out, where advantage can be taken of the natural features of the ground to form a complete scheme, showing sites for public buildings, open spaces, playing fields, allotments, &c., and a system of tramways might be introduced. Consideration should also be given to the provision of water, gas and electricity supply, drainage, removal of household refuse, and other conveniences. Areas liable to subsidence should be avoided wherever possible, but if no other site can be obtained, then provision should be made for the safeguarding of buildings, water and gas mains, drainage and other works.

The Design and Construction of Cottages.

In deciding whether the erection of cottages should be carried out in semi-detached pairs or terraces, consideration should be given to several important points. On a hilly site, semi-detached cottages are advisable so as to avoid expensive and ugly "stepping" and unnecessary underbuilding. Semi-detached cottages are also recommended at the junctions of streets where acute angles are unavoidable. Such corners are not adapted for larger houses, but a pair can be set across the angle. Where the ground is fairly level, cottages in blocks of four or six can be employed with advantage, saving end gables and reducing costs on roofs. To suit contours and exceptional positions, blocks of four and six may with advantage be erected around squares or small cul-de-sac. Blocks of eight are not to be recommended, as difficulty of access to back yards is accentuated.

Back lanes or roads must not be removed too far from the houses, but if gardens of any practical use are to be provided, the lane must be remote, with a reduction of its advantage. There remains the pend, or close, serving the two centre houses—in the case of a group of four houses, or where there are six or more houses, one pend to each two of the middle houses The additional cost in construction is compensated for in the additional floor space on the upper floors. Pends should be 4 ft. wide. Only in houses of under 20 ft. wide should pends be considered.

Every housing scheme should contain a number of flatted cottages, *i.e.*, one house on top of the other, each with its own separate entrance. The two-story, self-contained cottage, however, should predominate in any scheme. Living rooms should have a floor area of at least 180 super. ft., and should be, say, 15 ft. by 12 ft. Houses with three bedrooms should predominate, the larger having a floor area of 150 super. ft., the second 120 super. ft., and the third not less than 70 super. ft. Where two bedrooms only are included, they should have the areas of the larger and second above. A parlour should be included in a number of the houses in the scheme, and should open directly off the entrance lobby, and have a floor area of not less than 120 super. ft. The inclusion of a parlour should not be to the detriment of the living room. Rather have one large general apartment, than two inconvenient rooms. Ceilings for flatted cottages should be 8 ft. 6 in. high on both floors, and for self-contained cottages 8 ft. 6 in. on the ground floors and 8 ft. on the upper floors. As far as possible "coom" ceilings should be avoided. It has been found that the cost of cutting for dormer windows practically balances the cost of carrying the side walls up the full height. A long vista of two-story houses is not pleasing to the eye, while the "break-up" afforded by the broken roof adds effect, and removes the monotony. Coom ceilings should not exceed one-third the floor area and no "side" walls should be less than 5 ft. high.

Care should be exercised as to the position of the doors and windows in relation to fireplaces, the setting of the bed, &c. In living room, parlour, or bedroom, the door and window should be placed to avoid a draught across the fireplace or bed, and the position of the doors in relation to the placing of furniture should be considered. In designing staircases, the greatest economy in space and cost is secured by adopting the straight stair, but where this is not possible, wheelers and steps on middle landings should be avoided. Stairs should be 3 ft. 3 in. wide in the clear, with risers not more than 7½ in. high and treads not less than 9 in. broad. Lighting and ventilation of the staircase should be independent of the adjoining rooms. The bath room should be as near as possible to the source of heating, so as to curtail piping. If on the ground floor, it should be entered direct off a lobby or passage. In houses intended for miners, the ground floor position is to be preferred. The w.c. may, and wash-hand basin should, find accommodation in the bath room, and the apartment should generally be placed on the same wall as the scullery sink, so that all drains and water services can be grouped to assure economy in construction. The scullery should be sufficiently large to ensure convenient working, but not of such a size as to encourage its use as a living apartment. The sink should be 24 ins. by 20 ins. by 10 ins., and should be placed so that the housewife will not have to work in her own light. A fitted-in tub should be provided, and a copper or boiler, and space left for a gas cooker. The provision of separate washing houses in outshoots is costly and does not justify the expense. Centrally-placed public or communal washing houses, in a scheme of any magnitude, should have serious consideration. The cottage should have a coal store and larder, entering off the scullery or back lobby from a covered porch, and a space for a pram or cycle. The larder should be on the coolest side of the house.

Foundations of lime and whinstone chips may be employed where the soil is compact and dry. Foundations of large flat stones bedded on lime mortar are suitable, and in some cases brickwork foundations are to be recommended if suitably stepped. Except in very dry areas, a covering over the whole site of some impervious material is essential. Walls constructed of concrete *in situ* may be employed where a suitable aggregate is readily obtainable, and where the number of houses to be erected warrants the expense involved on moulds or shuttering. Where stone is available, and can be secured cheaply, it probably makes the most satisfactory and lasting wall. Whatever the materials employed, a damp-proof course below the level of the ground-floor joists and above the level of the adjoining ground should be introduced. Tiles are not recommended where the roofs are broken or cut up for windows or piends, and where slates are used the sarking should not be left out.

Another method of concrete construction which has been suggested is reinforced-concrete piers carried up from the foundations, with the joists for the ground and upper floors and the roof principals all cast in one piece in position, the wall spaces filled in with concrete slabs or brickwork, the floors constructed of reinforced concrete or the ordinary wood joists laid on the concrete beams, and the roof finished in concrete as above or the concrete principals used to carry a lighter wooden roof. Steel as a roof material might be used in combination with either wood or concrete as a secondary material. Whatever the material, rigidity and absolute imperviousness must never be sacrificed to appearance or economy in construction. Concrete may be substituted for wood, but except for sculleries, larders and coal cellars, some covering material is necessary. Light wooden runners may be laid on, or embedded in, the concrete to take ordinary flooring or a covering of breeze concrete, to which flooring may be nailed. Windows may be of framed sashes (if of wood), casement, or dead frame. Framed windows (if of wood) are more reliable, while dead frames are only suitable for scullery, bathroom, larder and staircase windows. These should, in every case, have a hinged part to open. Steel casements are to be recommended for durability, and may be used alone or in combination with wood or concrete frames. Cast iron frames are not be be recommended for good work, owing to their liability to rust. Standardisation of sizes should be aimed at.

For doors a standard height of 6 ft. 6 ins. should be aimed at with width varying from 2 ft. 4 ins. to 2 ft. 10 ins. Doors of iron or steel are not suitable for cottages, and wood must be looked upon as the ruling material. Styles and rails should be standardised if locks, hinges, latches, &c., of a standard pattern are to be used, and simplicity in mouldings should be kept in view. A framed door without mouldings—with the edges of the styles and rails chamfered or rounded off, has a pleasing effect. Ledged and braced doors are sufficient for sculleries, larders, &c. For internal finishings, economy in wood may with advantage be followed. Skirtings and facings need not be broad or thick to be effective. Very successful work has been accomplished in using cement for skirtings and facings. Door standards with facings and stops cast on have also been made in concrete, with good results, but cement substitutes are not to be recommended. With regard to cupboards, dressers and shelving, a rigid standardisation in sizes will effect economies. The tendency to lightness is false economy; but a simple fitting properly made is as effective and useful as one of elaborate pattern.

With regard to the layout of gardens, split chestnut or oak make good and serviceable fences; but a fence constructed with reinforced concrete uprights with longitudinal wires has all the elements of utility, economy of erection, and durability. For front gardens, oak fencing is to be preferred to parapet walls and iron railings. Allotments should be placed centrally, with a cart access from the nearest roadway, and with a water supply provided at regular intervals over the area.

Economy in drainage can be secured by a careful study of the position of the sewer. In narrow streets this should be in the street, but in wide streets a double system of sewers placed behind the houses leads to economy. The draining of each house separately into the sewer should be departed from, and a secondary drain or sewer taking the drainage of from twelve to fourteen houses should be provided. The cleansing of such a drain may, where the houses are the property of different owners, be provided for either in the Feu Charter or by arrangement for a special drain assessment with the local authority. No radical change in sanitary fittings from those now in use can be recommended. W.C.'s of the wash-down or syphonic pattern, with three gallon flushing cisterns of the "plunger" pattern being recommended. With regard to water supply, secondary mains behind the houses, or in wide streets, a main on each side of the street is recommended, branch and internal piping being of lead, each house having an independent combined stop and frost cock. Gas should be introduced for cooking and heating purposes and electric light for illumination.

Rural cottages should be built in pairs only, and on sites which lend themselves to suitable drainage, access from main roads and not too far removed from the farm or other centre of employment. The scullery should be larger and additional larder as storage accommodation for food should be provided. The coal house should be large enough to store a quantity of wood, and should be built outside in a detached position. This building might also contain an apartment for the storage of potatoes. Accommodation for washing should also be provided outside. Where there is no water supply it might be advantageous to provide an apartment which could be utilised as a bath room should a water supply be introduced at a later date. In any case a sink should be provided in the scullery, and adequate provision made to store rain water from the roof so that the same could be used for the sink. Rain water tanks may be in the form of a large barrel, but a more suitable and sanitary tank can be constructed of concrete, placed at such a height as to permit of the water gravitating to the sinks and also to the washing house. Where water for domestic purposes is obtained from an outside well, spring or pump, suitable accommodation should be provided within the house for storing a sufficient quantity for the day's requirements. Drainage should be provided at least for surface water, but if there is any outlet, all waste water should be carried into the drains. There should be a suitable cesspool between the house and the drain outlet to stream or ditch. Such cesspool should have a small screening chamber with W.I. grating, a large settling chamber and a filter chamber, the latter to take the overflow from the settling chamber, and should be filled with gravel or clinker suitably graded from 2 in. cubes at the bottom to ¾ in. material on top, with a depth of from 3 ft. to 4 ft. In sandy or open soils such filters have with success been constructed without a "bottom," the effluent passing into the subsoil without any signs of clogging after years of operation and without causing any nuisance whatever. No ash-pit should be provided for the houses as separate units. Large ash-bins should be installed, and these emptied periodically by the farmer or other authority into an ash-pit situated on the farm or other convenient centre well removed from the houses.

Industrial Propaganda.

The National Alliance of Employers and Employed has held one hundred conferences, which have been attended by over 25,000 industrial firms and 2,500,000 workers. Joint Area Committees have been established in twenty-four districts, and ten Committees are in process of formation in ten other districts. A large programme of meetings and conferences has been arranged for the autumn.

LIGHT-WEIGHT CONCRETE.

IN the course of an article in *Engineering*, Mr. L. W. Scott, A.M.I.C.E., says that after an extensive series of tests on concretes of all kinds, carried out by the Concrete Department of the U.S. Shipping Board, under the direction of Prof. F. R. McMillan, a light-weight concrete has been adopted by the United States Government for the construction of large concrete vessels. The tests proved that a concrete eminently suitable for reinforced concrete structures, and having a much lower specific gravity than ordinary concrete, can be obtained by introducing an artificial aggregate having a specific gravity less than unity. It is claimed that no object is gained by having an aggregate possessing a crushing strength much greater than the concrete made from it, and the crushing strength of the light aggregate is not greatly in excess of the resultant concrete. The modulus of elasticity of the aggregate in compression approximated to that of the binding material, and the resultant concrete, therefore, possesses a relatively greater homogeneity. The strength of concrete depends primarily on the strength of the binding material, and on its adhesion to the larger aggregate. This adhesion is greater to a marked degree with the light aggregate, owing to its greater surface area. To produce this increased adhesion, a larger proportion of cement must necessarily be introduced, resulting in a rich mixture, and, consequently, a more costly material. However, its adoption in certain reinforced-concrete structures must undoubtedly prove economical. Large-span, reinforced-concrete bridges and similar works are at present severely handicapped owing to the weight of the concrete employed in their construction, and it is in cases of this nature that the light aggregate will serve to overcome this difficulty to a large degree.

In December, last year, a vessel of 3,000 tons dead-weight, constructed on the monolithic principle and cast entirely of the new reinforced concrete, was launched. It was launched endways, thus imposing strains upon the structure quite equal to any ever imposed on structures situated on land. Although the bottom of the vessel was 12 ft. under water, no percolation whatever took place, and no cracks were perceptible in any part of the structure. A working compressive strength on the concrete of 1,000 lb. per square inch was assumed for designing purposes; this stress being calculated without taking into account the additional strength due to the provision of lateral steel reinforcement. The concrete employed weighed only about 110 lb. per cubic foot, and the aggregate distributed itself throughout the mass in a most satisfactory manner. It has been proved that percolation of water through ordinary concrete takes place along the surface of the aggregate, but the surface of light concrete is very uneven, and consequently its resistance to penetration by water is considerably increased. The aggregate itself, although light and cellular in structure, is not porous, and the lighter quality will acually float on water. A quantity of aggregate was kept floating on water for some months, and the absorption was very small.

The light artificial aggregate being used in America is made from clay, clacined in kilns in a similar manner to that employed in the manufacture of bricks, the fundamental difference being that the heat (about 2,000 deg. F.) is applied in the comparatively short time of thirty hours. This relatively sudden application of heat, causes the material to swell, forming a clinker. The clay may be pressed into bricks and partially dried and stacked in kilns in the ordinary manner, care being taken to provide sufficient room around the bricks for expansion during burning. The size of the brick adopted in the United States is 8½ in. by 4¼ in. by 2¾ in During burning, the bricks run together and form a solid mass of clinker, which is allowed to cool for about three days in order to ensure a high degree of toughness. The cooling of the materials is then completed by water, which causes the mass to spilt into pieces suitable for handling, and it is also found that this greatly facilitates the unloading of the kilns. The material may also be calcined in cement rotary kilns, the clay in this case being pressed into lumps of suitable size. After burning, the production is crushed to the desired size. During the operation, a proportion of the lightest aggregate is reduced to dust; this, however, is used to take the place of sand or crushed stone in ordinary concrete. By careful selection of grading of the constituent parts, a concrete may be obtained from this product weighing about 110 lb. per cubic foot, and having a crushing strength at 28 days of 4,000 lb. per square inch.

The method of eliminating voids in the centre and causing it to efficiently encase the reinforcements by means of pneumatic hammers, is one which seems to have received comparatively little attention from engineers in this country. Judging from results obtained in the United States, it is considered that the use of these hammers is extremely advantageous, and might well be adopted to a considerable extent. A concrete weaker to any desired degree than the above can be obtained by reducing the proportion of cement in the mixture, and owing to the greater proportion of aggregate introduced there will be a corresponding decrease in both the cost and the weight of the concrete.

The question of cost has received careful attention, and although no figures comparable with those current in this country can be given, it can be stated that the advantage gained in structures, where weight is an important consideration, fully compensates for the increased cost. At the present time, a number of reinforced-concrete oil tankers and cargo steamers of 7,500 tons dead-weight are under construction in various parts of the United States. These vessels are 434 ft. long, and the fact that all of them are being constructed with the light-weight concrete described above, shows conclusively that the responsible authorities have complete confidence in its ability to withstand the alternating stresses which will be brought on the structures when the vessels are steaming in heavy weather.

THE GATTIE TRANSPORT SYSTEM.

CONTINUING his evidence before the Board of Trade Committee, the beginning of which we briefly noted last week, Mr. A. W. Gattie described the methods by which transport of goods would be automatically transferred from one part of the proposed central goods clearing house to another. He anticipated that the labour-saving devices would result in better conditions and increased wages for the employees and that casual labour would be done away with. He claimed that rather more labour would be required under his scheme than at present. He realised the serious results of a strike at the suggested clearing house, but thought that was a remote possibility. He criticised the methods in use at the London Docks, which he described as obsolete. He estimated that at present the cost of hauling a ton of goods from Leeds to London was only 8d., the remainder of the charge of 57s. being for collection, delivery terminal charges, handling, &c. He did not propose to alter the railway charges, but to introduce a flat-rate system. Complete trainloads of goods would be made up at the clearing station, and handed over to the railway companies. He did not propose to introduce the use of a canal in connection with the clearing station, but thought it might be possible to do so in provincial towns. He proposed to equip a special wharf on the Thames at Blackfriars. To facilitate canal transport, he would like to see hydraulic lifts introduced for lifting barges up and down instead of the present system of locks. The scheme would redeem £300,000,000 worth of land by the elimination of shunting.

THE BUILDING TRADE.

THE PROPOSED REORGANISATION OF THE BUILDING INDUSTRY.

WE considered the Interim Report of the Committee on Scientific Management and Reduction of Costs of the Industrial Council for the Building Industry, in the leading article in our issue for Aug. 22, when we gave the greater part of the Report; and in our last issue we printed some part of the Minority Report of Mr. John Turner. We now give three articles by well-known building contractors, and we hope to publish next week further contributions on the subject.

COMMENTS AND CRITICISMS

on the Interim Report of the Committee on Scientific Management and Reduction of Costs, appointed by the Industrial Council for the Building Industry.

By BENJAMIN I. GREENWOOD.

This report was signed by three employers, seven operatives, and one co-opted member, out of a committee of seventeen members, one of whom was incapacitated by ill-health. Five employers declined to sign the report. In an article by a correspondent of the *Daily Telegraph* it is stated that of the three employers who signed the report "two were merely sub-contractors representing the decorators and plumbers, and the third was a Scottish building-trade employer." These particulars are not given in order to depreciate or appreciate the report, but simply to indicate that it cannot be regarded as a representation of the opinions of employers in the building trade, and a cursory perusal of the report is sufficient to establish this statement beyond question.

The report first deals with the "Regularisation of Demand," which is, of course, a desirable object in any trade, but so long as the proposed restrictions and regulations are voluntary, the prospect of attainment is not hopeful, if one may judge from the queues that have recently been witnessed in our streets. One has not recognised any disposition to surrender the attainment of individual need in favour of others, and in busy times there are queues in the building trade, each client with his architect and his contractor naturally considering that their claims for precedence are second to none. On the other hand, if the proposed restrictions were to be made compulsory, and building operations were to be allowed to proceed by licence only, this would become intolerable as a normal institution, and would constitute a very drastic encroachment on the inherent liberty of the people. One regulation only is needed, viz., that works of urgent national importance alone should have precedence, and even in that case the national urgency must be genuine, and not merely urgency that may be alleged by an interested section of the community. The report next deals with the "Decasualisation of Labour" in the building trade by providing alternative employment elsewhere, thus avoiding unemployment pay. This, again, is an obviously desirable object, although some of the proposed details are questionable, but for many years to come the contemplated situation will not arise, for there will be ample work for all who really want work.

The discursive "Introduction" to the report, as well as the sections immediately following, only form a convenient scaffolding for the erection of the main and essential thesis of the report, viz., the elimination of master builders and the confiscation of their businesses on the lines of Syndicalism. This report practically proposes that each builder or contractor should surrender his business to the control of an "Employment Committee" (apparently consisting of an equal number of employers and operatives and one architect). There is no reference to any consideration being paid for the business thus acquired, and this omission is quite significant. It is apparently assumed that the proprietor of the business thus acquired without consideration will be content to become an "employer manager," and have his salary determined by the "Employment Committee" (rather a rash assumption). He is not to be at liberty to withdraw all or any of his capital for starting his business again in another country, or for investment elsewhere, but his capital is to be "hired," presumably by the "Employment Committee," at a "limited but guaranteed rate of interest bearing a definite relation to the average annual yield of the most remunerative Government Stock." The word "guaranteed" is interesting in this connection. Who is the guarantor? The "Employment Committee"? But the "Employment Committee" has apparently no funds except such as may arise from the profits of the acquired business, and the profits of a business run by an "Employment Committee" would constitute a very elusive sort of guarantee! There are many who would consider that not only the "guaranteed" interest but the "hired" capital itself would not survive for long in such circumstances. The report naively states that when such terms are established, "the whole atmosphere would be clarified." It would be. The innocent and ingenuous manner in which the "surplus earnings of the industry" are apportioned is suggestive of the maiden who was calculating what she would do with the product of the basket of eggs she was carrying—unfortunately there did not happen to be any product. Control by the "Employment Committee" is evidently intended, for the party who determines salary controls or directs the recipient, and if the "Employer Manager" did not please the Committee, or do its behests, it would be able to impose a very summary remedy. But what would happen if the "Employer Manager" became discontented and resigned? Would he have to leave his capital (in the form of premises, machinery, plant, &c.) behind? or could he eject the "Employment Committee" and get on with his business?

The constitution of the "Employment Committee" is interesting. The panel of operatives could be easily appointed (presumably by the workmen) and the services of the architect could doubtless be secured for an adequate remuneration, but there would be some difficulty with regard to the panel of employers. Would they be competitors in trade? If so, they might glean valuable information, but if that bait were insufficient there might be some difficulty in finding employers who were ready to neglect their own businesses in order to meddle with the businesses of other people. This problem raises the question of the remuneration of the "Employment Committee." The architect would doubtless require a substantial salary, and the employers would naturally demand to be placed on an equal footing (for this is not a case of rendering philanthropic and gratuitous service to the trade generally)—in fact, there could be no invidious distinctions between the members of the Committee, and the operatives would be entitled to equal remuneration with the architect and the outside employers, so the permanent "Employment Committee" might easily become a considerable charge on the profits of the business. The report is quite vague as to the functions of "Employment Committees," but their powers and duties have been interpreted in the light of the introductory declaration that the purpose in view was "*to develop an entirely new system of industrial control by the members of the industry itself—the actual producers, whether by hand or brain.*" If, in these comments and criticisms, the intentions of the Committee are misinterpreted, it is due to the vague and indefinite manner in which its report is drafted. It is capable of so many different interpretations that one becomes bewildered in the endeavour to discover on what definite and practical procedure the scheme is intended to be developed, although the general object ultimately desired is tolerably clear.

The real answer to the report is contained in a letter which appeared in the *Daily Telegraph* of August 23, which is worthy of quotation *in extenso*:—

BUILDING INDUSTRY: THEORY AND PRACTICE

"SIR,—In a recent issue you refer to the remarkable proposals contained in the report on scientific management, presented at the first annual meeting of the Industrial Council for the Building Industry. These proposals were, indeed, remarkable, and one is tempted to ask the simple question: Why not put these theories into practice, and convince an incredulous public of their accuracy, and, at the same time, reap the benefits accruing? The trade unions, as well as the operatives individually, who believe in the scheme, would surely be glad to invest their money, and this, with the subscriptions of others who approve the plan, would provide ample capital for an early commencement. There could be 'industrial control by the members of the industry itself,' and thus produce 'the full development of the team spirit in industry, which is the key to the whole problem of production.' There would be no 'unrestricted profit for private employers,' to check output, and 'the lack of interest in the industry evidenced by operatives, owing to their non-participation in control,' could be eliminated entirely. 'The maintenance of its unemployed members (or subscribers) could be undertaken by the industry,' and 'the necessary revenue could be raised by means of a fixed percentage on the wages bills, and paid weekly . . .' on the 'joint certificate' of the employer and a shop steward, as advocated, and the surplus earnings need not go 'to individuals, but to some common service controlled by the industry as a whole,' as proposed. The salaries of managers could be 'periodically reviewed by the employment committee in order to develop a recognised standard of remuneration.' There could also be 'a regular rate of interest for the hire of capital, bearing a definite relation to the average annual yield of the most remunerative Government stock,' and so on. Why not do it? This is a free country, and there is apparently no hindrance to the whole programme being put into operation at once, and thus providing an object-lesson to the whole nation which would be much more convincing than any amount of academic theories. When a cook declines, under pressure, to partake of her own preparations for others, she is inviting suspicion. Why not silence the criticisms of the incredulous once for all? When success is attained, the process could be multiplied until the system embraced the bulk of the industries of the Kingdom, and, incidentally, solved the intricate problems that are now disturbing the commercial and industrial life of the country.

"Yours interestedly,

"COMMONWEAL."

If it is not discourteous, one would be disposed to say that the authors of the Report have adopted the habits or instincts of the cuckoo. Why should they be permitted to lay their questionable eggs in other people's nests, when there is ample material available for the construction of nests of their own?

Perhaps the incomes of some of the signatories to the Report are already regulated by their creditors and workmen, but if it is not so, they are doubtless quite willing to adopt that procedure, and one may fairly assume that they are quite ready to act as "Employer Managers," and to offer their capital on hire at the limited but guaranteed rate of interest; so that there are at the present moment three opportunities to put the principles of the Report into immediate operation—capital

and management, premises and plant are doubtless available at once in order to demonstrate the wisdom or folly, the advantages or disadvantages, of the system advocated. There may be quite a number of employers quite ready to be convinced of the soundness and excellence of the recommendations of the Report by practical demonstration, and thus the gospel (if it be a gospel) may be spread abroad until the visions of the authors of this Report become realised and transmuted into actual fact throughout the whole industry.

Illustration may often be more potent than argument. Let us imagine that a certain group of men have invented a new engine, which they allege is capable of driving the machinery of a mill in a manner vastly superior to the existing power plant, and they consequently invite the owners of the mill to scrap their engine and substitute the new one. Experienced engineers advise that the efficiency of the new engine is extremely doubtful, although the inventors have (apparently) abundant faith in it. The owners, if they are sane, will inquire whether the new engine has been run or tested and, on receiving a negative reply, they will naturally decline to scrap their engine and stop their mill until careful and prolonged tests have been successfully applied. One cannot but remember that the Government recently offered one or more of its best munition works to be run by co-operative labour; but it would appear that those who, in theory, advocate "industrial control by the members of the industry itself," have no desire or intention to risk their own money in such a venture, although they are quite ready, if not eager, to experiment with the "hired" capital of other people. Their faith in their theories is not very robust.

The authors of the Report may have had in mind the following words of Lord Leverhulme: "I am convinced from my own observation that there is less than one per 100 people who would be capable of running a business, however small, and making a profit on it; that there is less than one in 100,000 who would be capable of running a large business"; they therefore astutely propose to employ the employers, and incidentally to exploit the employers also. Is it reasonable to expect that any man who has purchased his business, or built it up by the skill and self-sacrificing energy (probably 14 hours a day rather than 8) of a life-time, or has acquired his business through the skill and energy of his father, will hand it over without consideration for a series of experiments which he honestly believes would speedily wreck it beyond recovery?

In conclusion, it may be desirable to turn from destructive to constructive criticism, and with that end in view it becomes necessary to set forth what are the essentials to a successful business in the building trade (and many other trades), for there seems to be much misapprehension in these matters.

1. *The Provision of Capital*, which usually represents the savings of the thrifty, either in this generation or previous generations, which have originated from unremitting toil, coupled with far-seeing skill and ability.

2. *The Securing of Remunerative Contracts*, which involves not only skilful estimating, but a keen judgment as to the financial stability of the client, and also a wise forecast as to future industrial and commercial circumstances.

3.—*The Successful Purchase of Suitable Materials*, which is by no means a common attainment.

4.—*The Skilful Administration of the Operations*, which involves the wise selection of a competent staff, the adoption of the machinery best adapted to the purpose in view, and other considerations too numerous to mention.

5.—Last, but by no means least, *The Labour of the Operatives Employed.*

It will be observed that the operatives have little or no ability to assist in securing the first four essentials. There is to-day a popular tendency to exaggerate the *essential* and *important* part played by the operatives in the building and other industries, and to regard the employer as a sort of parasite feeding upon the labour of the operatives. These mischievous misrepresentations are fomenting jealousy and ill-feeling where, for the benefit of all concerned, there should be harmony and confidence, and both employers and employed are suffering in consequence. In industries that are subject to foreign competition, the results are already proving to be fatal.

Now, the following formula will doubtless be conceded without gainsaying: *The operatives may be entitled to share in the profits they produce—but they are not entitled to share in profits which they do not produce.* Under that formula the operatives would not be entitled to participate in profits arising from the first four specified essentials to a successful business, in which they can give no assistance, and for which they can accept no responsibility. On the other hand, they should not suffer through failure in any of those first four essentials for which they are in no way responsible, that is to say—if the employer is trading with insufficient capital, or if he makes blunders in his estimating, or if he fail in purchasing his materials to advanatge, or if he muddles the administration of his business, then the operatives who are doing their part efficiently ought not to be deprived of a share in any profits they may have created beyond the fulfilment of their duties in respect of the wages they receive. Under the same formula it is also evident that a certain section of the operatives are not entitled to share in any profits, for they create none; that is to say, the workmen who reduce their normal output, from whatever motive, and shun a fair day's work, surely cannot claim to participate in profits to which they contribute nothing. The theory that all workmen, good, bad, or indifferent, should claim to share alike in profits is obviously untenable.

Quite recently a workman in a certain industry was found to be sitting down in conversation with a labourer for about ten minutes or more during working hours. The machine that he was supposed to be working stood idle, the power was wasting, the labourer's time was wasting, his own time was wasting, and more serious than all was his influence on his fellow-workmen. When he received a week's notice, he declined to proceed with his work, and his fellow-workmen in that shop struck work also without giving the requisite notice. Is it seriously contended that such a man is entitled to share in the general profits of the industry to which he contributed less than nothing? Surely, the most elementary principles of justice demand that a share in profits must depend upon some contribution to such profits, and to set up an indiscriminate claim on the part of all workmen (irrespective of their output) to a share in profits whether they contribute or not is not only unreasonable but absolutely absurd. The question here arises, What are wages paid for? Presumably for a fair day's work; but if a workman by reason of skill or energy above the normal level produces more than an average day's work (it is not a high average), then he may be entitled to some share in the extra profit he is producing. It is often argued that he will have no incentive to produce such extra profit if it all goes to the benefit of his employer; but it would seem to be reasonable that a good share of such profit should go to the workman who produces it with the machinery and the opportunity provided by the employer.

Now, if the workmen are not entitled to share in the losses or profits for which they are not responsible, but only in such profits as they create, then the only apparent method of awarding their share is by the payment of a bonus on output, representing the bulk of such profit irrespective of the general profits or losses of the business as a whole (The payment for overtime might conceivably be regarded on a similar basis. When a workman works overtime his standard rate of pay still compensates him for the work he actually does, but having worked for extra or additional time and thus presumably having produced some profit beyond the normal profit of the day, he receives as his share of that additional profit a 25 per cent. bonus on his standard rate—such bonus is, however, generally greater than the additional profit produced, so that overtime is usually disadvantageous to the employer.) The profits retained by the workman would thus be equitably regulated by his own efforts or skill, and the profits retained by the employer would thus be equitably regulated by his own efforts—skill and enterprise.

It will be a pity if the Industrial Council for the Building Industry cannot turn its attention to some more beneficial purpose than that which is indicated in the Report under consideration.

A FEW WORDS TO EMPLOYERS.

By Ernest J. Brown, *Member of the Building Trades' Industrial Council.*

It can safely be said that the present moment is, so far as regards the building industry, the most critical in the whole of its history. Matters of the utmost importance are uppermost in the minds of all concerned, be he employer or operative, and a serious study of the situation may not prove to be time wasted.

The Press generally has put before the public, both in full text and in abbreviated form, that extraordinary Report which emanated from the Building Trades' Industrial Council, or rather, I should say, from one of its committees. It came like a bolt from the blue, it was hailed with enthusiasm by the operatives, and supported only, from the employers' point of view, by two or three kindred spirits representing a minute fraction of legitimate builders, and a mere handful of advanced (save the mark!) thinkers amongst the sub-trades. I have before me many questions which have been addressed to me upon the subject from builders and others which are difficult to answer, some of them are of a most inquisitorial nature, such as: "How many workmen are employed by those employers who helped to produce the Report?" "Do they carry on their businesses on the lines laid down in their Report?" "Do they practise what they preach?" "Are their profits strictly limited according to their precept, and if so, are they prepared to disclose their balance-sheets since they adopted their creed?" To all these questions I could, I think, give a fairly true answer. I should base my answers upon the opinion formed through personal acquaintance of the people concerned, and I do not think they would be very convincing. The mover of the adoption of the Report appeared to be in earnest, but what a pity his talents are so misplaced at this critical period of our industry! It is well for the community that a more far-seeing member of the operative side of the Council obtained almost unanimous support for his resolution to hang the matter up until everyone has had time to digest it.

But what does the whole thing really mean? Is it possible that any of the signatories to the Report, whether employer or operative, can have examined it in detail, with a clear intention of finding out where it is intended to land us, or is it simply because it savours so strongly of the Hyde Park orator's declaration of "away with capital, away with employers, away with everything, and everyone but us," that the trade-unionists accepted it in the spirit in which they did? Let us hope that should we ever hear of the Report again, they will come out into the open, lay their cards upon the table, and say plainly whether these are their views; then the employers will know how far they can meet them and where to stop. At present we are not drifting, but rushing, headlong to destruction.

How can a proper output in the building trade be obtained? That is the burning question of the day for all in our industry. Is it possible to obtain it by shortening working hours? Is it at all likely that a man will work better or harder because he is to leave off an hour earlier, or begin an hour later than before? Not a bit of it. Only the other day I put a direct question on the 44-hour subject to an official of one of the trade unions—it was as follows: "If a 44-hour week should be conceded, what will be the first thing your members will then ask for?"

To my gratification I obtained a straight answer, "They will ask to be allowed to work overtime," he said, and I firmly believe that is the end in view. Let us understand the position clearly, and not mince matters. All this talk we have heard from statesmen and others about "a better world to live in," or "more leisure, healthier and happier surroundings," and such-like expressions, do not weigh one little bit with the people they are intended to appease or to please, it all boils down to one thing in the end—"money." With food and clothing, travelling and pleasures all at prohibitive prices, is not the British workman in just the same position as the employer, only out to fill his pockets as full as he can, in order to pay his way, and, if possible, have a bit over for the rainy day? It is always a case of "money," nothing else.

If only one could see the workman taking once more a live interest in his job, and not watching the new hand to see that he does not do too much, but rather telling him to "buck up"; if only we could see every man at his post, ready to commence work at the sound of the whistle, and not lay down his tools until it sounds again, what a delight it would be, and what an example to every worker! How quickly the habit would grow, and how the output would go up by leaps and bounds! Only this week I passed a job at three minutes past twelve, and I counted thirty-five men who came from that job, already fifty yards away from it. At one o'clock, at the same job, there was scarcely a man *inside* the gates. Upon a previous occasion, in a factory where three thousand men and women were engaged, on a Saturday, at a quarter to twelve, there was not one man or woman at work! All were washing, or brushing themselves down, or changing their clothes. What did it mean? Simply this, that as this occurred twice a day (they were working overtime), 1,500 hours per day were paid for as having been worked, whereas not a stroke had been done! Readers have only to work out a simple bit of arithmetic to find what was the annual loss at that factory—not loss in money, I am not touching upon that, but loss in output. I hear someone say, "Where was the management?" I put that question to the managing director, who accompanied me, he put it to his works' manager, and the reply was, "If I utter a word of complaint the whole lot will down tools," and at the time such a policy would have led to disastrous results, as we were then seriously short of the goods required for war purposes.

Here, then, is a chance for the leaders of the operatives. If we could only find them sternly setting their faces against such waste of time and penalising their members who are guilty of it, we should find employers would come to the round-table conferences in a far different mood. We could all join hand-in-hand in an earnest and solid endeavour to help the worker to earn good money and proper leisure, and should never begrudge him either. Cannot something, then, be done by employers towards this object? I seriously suggest it is time all these points were put before the workmen, and I am sure great good would result from meetings between employers and operatives—in the employers' time if necessary—in all factories or shops where there are sufficient numbers present, when a better understanding could be arrived at even if it were only upon the subject of good timekeeping. From one subject it would be easy to turn to another, and no opportunity should be lost for discussing the all-important question of output in connection with bonus on output, profit-sharing or piece-work. It seems so strange to find thousands of men, absolutely longing for opportunities to lay up for themselves treasures on earth in the shape of money earned by piece-work, but who dare not "take it on" for fear of the heavy penalties their societies would inflict upon them for so doing. Never has one valid reason been adduced by the societies against piece-work; we have been told it lends itself to "scamping" of work—what rubbish! It has been clearly proved, during the war, that no scamped work was passed by those in control; wherever the work was faulty, the workman had to put it right before he was paid for it, and I never heard yet of a dispute having arisen on this account amongst any of the men so working in the building trade. What other reason that has been put forward against the system can we think of that is worth a moment's consideration? None whatever. The one thing behind it all is simply the fear that men so working turn out too much work, and the fear that there will not be enough work to go round in consequence. With five years' arrears to be picked up, and with an enormous volume of work accumulating day by day, owing to shortage of labour and reduced output from labour that is available, it may be safely assumed that the men engaged in this industry need fear no want of employment for many years to come.

Let employers, then, come forward, let them mix with their workmen, let the heads of firms make themselves personally acquainted with those in their service, let them listen to the grievances sympathetically and do their best to find a remedy in every case, let them discuss the work in hand with the workers and get them interested in what they are doing, let them offer a premium to any worker who can bring forward suggestions for improved output and which they will put into practice if at all feasible—in a word, let employer and employed be found personally in touch, one with another, the former directly approachable by the latter, showing himself frequently in the flesh, seeing and hearing for himself all that is going on in the production of work for which he is himself responsible to his client, thus establishing a direct liaison between the man who is to receive and pay for the goods, and the man who produces or helps to produce the finished article. It is by such means as these that the millenium is to be reached, if ever it is to be reached, and not by the means at present in vogue, of turning over one's interests to a second, third or fourth party as one's agent. How often, during the war, I venture to ask, would grievances of the "Tommies" have been settled quickly and satisfactorily had the men been able to approach the C.O. direct, instead of by the circuitous and unsatisfactory route of the sergeant, sergeant-major, adjutant, and finally the "top dog"?

Away with these antiquated methods, I say. Everyone should be at work with one common end in view, the good of the community as a whole, a fair profit to the employer of labour, a fair profit to the workman who helps to produce that profit, a satisfactory building for the client, who is the means of these profits being obtained, and ultimately a fair profit to the national exchequer, which at all cost must be replenished by honest work from all concerned. After all, to quote a well-known advertisement, "it is so simple."

"BACK TO EARTH."

By ROLAND B. CHESSUM.

(*London Federation of Building Trades' Employers.*)

I HAVE read with interest the leading article on "Pooling an Industry" in your issue of the 22nd ult., undoubtedly with the more interest because I am one of the employers who could not see his way to subscribe his name to the report presented by the Chairman of the Committee, of which I am a member. With every desire that is expressed in this report for the provision of the best possible conditions of employment and the adequate remuneration of the operatives for the services rendered, I am in the fullest accord; but the methods which are suggested would have the effect of defeating the very end the supporters have in view. I wish to make it perfectly clear, as I have already done in Committee, that I credit those who have supported these proposals with the best and highest of motives, but I disagree with the methods.

One of the foremost steps to be taken in the right direction is for the employers to endeavour to place themselves in more personal contact with those whom they employ; and, although in large firms with widely-spread operations, it might not be a simple matter, yet, with some sacrifice on the employers' part, I believe the difficulties could be overcome. As one who has for many years taken an active interest in the social and industrial conditions of the operatives, and read as much on these subjects as a very busy life has permitted, I have long recognised that the outlook of employers in past generations has been more directed to the amassing of wealth for themselves and their families than towards the fair remuneration of their operatives. Yet, even prior to the war, there were many employers who had already taken a broader and wiser view of the position; and the struggles and tragedies of the past five years, when all classes have been drawn closer together by common sacrifices, and have got to know one another better, these feelings have largely developed, and—speaking for my own industry of building—I can say, without hesitation, that there never was a greater desire amongst the employers who sit on the London Master Builders' and Aircraft Industries' Association and the National Federation of Building Trades' Employers for the operatives to have a fair share of the success, which means profits, which their industry helps to produce. But the question is, "How is that to be achieved?"

As a first step, the operatives are now protected against the exploitation of their labour by the unscrupulous employer, which they were not formerly, by the fact that a minimum wage is agreed between the employers' associations and the unions. To that extent, a great gain has been achieved by the operatives, although a serious problem has yet to be solved in connection with those operatives who, through advancing years, or through illness or other causes, are unable to earn even the minimum wage, and who, without some special provision is made for them, must be permanently thrown on the unemployed list, unless they are retained in the firms where they have been for many years, by the friendly relations existing with their employers. The next step which employers desire to take is to reward individual merit; but when the attitude is taken up by the unions that they will not agree to any bonus on output, profit-sharing or piece-work, whilst they do not object to the hourly rate being increased to individuals, then, indeed, from the employers' point of view, the solution seems hopelessly distant.

I have heard the opinion expressed that the "getting of profit is at best a sordid ambition," but I fail to agree with such a doctrine, always assuming that the means adopted are honest and the uses the profits are put to are worthy. Anything which tends to reduce individual effort, to my mind, is wrong, and I hold that it is the hope of reward which sweetens labour; and if by energy and ability an individual is able to achieve something more than the ordinary, then that individual is entitled to such reward as his merit deserves. Our industry stands alone in the circumstances and conditions of its operations, and, although I do not think it is possible to adopt the "team" or collective spirit in the same way as in a factory, it is quite possible to do so in many sections, so that those who deserve may receive something more than the minimum for their efforts. A great deal has been said about the fear of unemployment, and I can quite realise what an anxiety it must be; but if greater production means greater demand, the fear of unemployment would recede, and if individual merit received additional recompense, a further provision would be available for the period of unemployment, if and when it arrived.

I know that it is contended by some that our industry is confined to these isles and does not come up against foreign competition, but I would point out that the prosperity of our industry is only possible if the whole country prospers, and, therefore, the more economical our production the more possible it will be for those industries which do export to meet foreign competition. The gospel that "if each does less there will be more to go round, and so more employment," is one with which

I entirely disagree, holding as I do the opinion that the larger the production the larger will be the demand, because, with the cheapening of production, the investing public will have greater inducement to place their investments in the products of our industry.

I cannot understand the antagonism of the operatives against capital. Capital has simply been the result of one individual saving where another has spent; and as long as human nature endures, so will these two classes of individual remain in every walk of life. The progress of the world has been due to enterprise, either individual or collective, and the promoters, in either small or great degree, have been prepared to risk their savings on the success or failure of the particular enterprises that have attracted them. To attempt to put into practice the suggested "hiring of capital" would, in my opinion, inevitably lead to disaster.

The complaint has been made by the unions against combinations and rings, but this is like the "pot calling the kettle black." The whole organisations of the operatives are but rings or combinations of labour, and no one has suggested that their efforts to secure the best conditions for their members are improper. It all depends on the use to which combinations are put. The one factor that is required at the present time to regain the position which has been lost during the war is INDUSTRY, which will produce an increase of output. Suggestions have been made that this increase can be obtained by better organisation and improved machinery, but that does not explain the reason why the output per unit to-day is so much below the corresponding output in years gone by, when organisation and machinery were not at the same stage of efficiency that they are to-day. We hear that the Belgian operatives, inspired by patriotic motives, have decided to work longer hours in order to make up the arrears which have accumulated during the war and to replace their nation in its former position in industry; but in this country there is no such suggestion made by the operatives, but, *au contraire*, a persistent demand for shorter hours, irrespective of output, on the plea that the operatives desire and require more leisure at their personal disposal. Yet, the practical effect of the reduction of hours, where adopted, has been the eagerness of the operatives to work beyond the shorter hours, with the object of increasing the weekly income by the overtime rates.

I should like to say that, although the amendment by Mr. Smethurst, which I seconded and which provided for the augmentation of the Committee, was, in fact, lost, the further amendment that "the report be further considered by the Committee," was proposed by an operative and seconded by me, and carried; and this Committee has power to co-opt, the effect being practically the same as the first amendment.

I have not endeavoured to deal with each item in the report, because I am still a member of the Committee to which it was referred back; but I have set out my opinion on some points, the consideration of which, to my mind, is vital at the present time in the interests of the building industry.

INDUSTRIAL PROBLEMS.

THE Trade Union Congress, which is to be held in Glasgow next week, has a great opportunity before it for a statesmanlike debate upon the industrial questions of the day. The country is faced with a crisis as serious as that which confronted it at the outbreak of war, and it needs to summon all its resources to meet that crisis. From the *précis* of the agenda so far published, it appears that the Congress is to consider matters either totally outside its functions or resolutions which found a regular place in the debates before the war, many of which, if they are practicable at all, would involve immense increased expenditure to carry them out.

The two paramount questions of the hour are how to promote production and how our industries are to be placed on a paying basis so as to meet foreign competition and make new capital, but apparently the Congress is to go on fiddling whilst the "capital" burns. Far from the lessons of the war proving salutary, they have been pernicious. We were compelled to run the war out of capital, the work of the war had to be performed and the question of cost could not be considered. Wages were paid not on an economic basis, but to get the work through, and those who remained at home and did not bear the perils and hardships at the front, but who worked long hours and increased output reaped the reward of their labours, and received high wages and never lacked work. The standard of wages became high, but the necessary restrictions on food and luxuries prevented, to a large extent, the wages received from being squandered.

There is an old maxim of political economy, "Capital is the mother of wages," which had to be superseded, and the taxpayer became the mother of wages for the duration of the war; but this cannot continue, and wages must once again be derived from their true source—*i.e.*, from the return obtained from industry.

What is the position to-day? The country is denuded of capital, foreign securities have passed from our hands so that the interest due upon them no longer comes to this country in the form of goods, and the imports vastly exceed the exports, and there is nothing to pay the adverse balance with. Is this the time to call for a limitation on the hours of work, an increase in wages without proportion to output, an increase of 100 per cent. in workmen's compensation, and so on? Another resolution calls for a levy on capital, but the war has made a levy on capital without precedent, and a further levy on capital would be one in name only, as, in fact, it might but be a cancellation of debt and a repudiation of the nation's credit.

It is well that these truths should be clearly stated, because we believe that if the facts are once appreciated the spirit of the nation will be aroused to meet the industrial crisis in the same manner as it was aroused to overcome the dangers that threatened it in the war.

There is only one way to renewed prosperity; the greatest economy in all ways, the greatest energy in increasing output, goodwill in promoting every kind of industry, self-denial on the part of all classes, and the accumulation, not the dissipation, of capital.

If high wages are to be received they must be earned out of profits, and they must be spent with discretion or saved. At the present time the world's resources of food and of clothing do not permit of extravagant living and dressing, and waste means higher prices and more distress, and unemployment in the future. If the nation puts its shoulder to the wheel it is to be hoped a higher standard of living may be obtained, with better housing conditions and shorter hours of labour, but this is not the moment for fancy resolutions calling for ease and plenty out of nothing; the sources of wealth are pumped dry, and must be replenished by a thrifty and hard-working nation, by a nation alive to the greater opportunities lying in front of it, which can and will be obtained if it shows a spirit worthy of the great position in the world that has recently again been granted to it.

Mr. George F. Glenn, proprietor of the Seyssel and Metallic Lava Asphalte Co., has recommenced business at new offices, Moorgate Station-chambers, E.C. 2 (Tele.: London Wall, 262). The business was suspended whilst Mr. Glenn was a prisoner-of-war in Germany, and he now hopes to carry on again on the old lines.

STEEL BRACKET SCAFFOLDS.

Messrs. Humphries' steel bracket scaffolds are being used in connection with the redecoration of the exterior of the Berkeley Hotel, Piccadilly, which we illustrate on this page. The advantage claimed for these scaffolds is that the exteriors of buildings are not damaged by their use, there being no holes to cut and make good again as when ordinary scaffold poles are used. It is also claimed that the steel bracket scaffolds can be erected and removed in less time than ordinary scaffolding, and that a large saving in labour is effected.

Bracket Scaffolding at the Berkeley Hotel,

SAFETY AND WELFARE IN INDUSTRY.

THE Safety and Welfare Committee, appointed by the Joint Industrial Council for the Building Industry, consisting of three employers' representatives and three operatives' representatives, has issued its first report, as follows:—

Proposals were formulated respecting safeguards for some of the principal wood-working machines, and it was arranged o call a conference between the Committee and the principal British makers of these machines. Of the seven manufacturers of machinery who were invited, five sent representatives, as follows: Messrs. J. McDowall & Sons (Mr. A. McKendrick), Messrs. John Pickles & Son (Mr. G. Pickles), Messrs. A. Ransome & Co. (Mr. E. Josselyn), Messrs. T. Robinson & Son (Mr. L. King), and Messrs. Wadkin & Co. (Mr. A. Priestman). The amended proposals having been passed without dissent by the Committee, are now submitted for the approval of the Joint Industrial Councils concerned. If approved, it is assumed that the proposals will be submitted to the Secretary of State, with the suggestion that he should give legal effect to them. As regards the use of guards at vertical spindles, the Committee regrets that it is not able to be more specific in its recommendations; but some of the guards at present on the market, although excellent for certain classes of work, are said to be unsuitable or inadequate for some of the operations performed at the spindle. As a rule, guards are not supplied by the makers of wood-working machinery, and many accidents occur before guards are applied. Even when the user takes action, the protection provided is frequently inadequate and badly constructed. The Committee is of opinion that makers of wood-working machines should supply adequate guards with all such machines delivered to users in the United Kingdom.

Circular Saws.—(*a*) Part of saw below the table.—This part should be guarded by two sheet-iron plates—one on each side of the saw. The plates must not be more than six inches apart, and must project at least two inches beyond the teeth of the largest saw used on the bench. These plates must not be thinner than 14 gauge if not beaded, or than 20 gauge if beaded (standard wire gauge).

(*b*) Back of saw.—This part should be protected by a riving knife, the front of which should form the segment of a circle having a radius not exceeding the radius of the largest saw used on the bench. The knife must be strong, rigid, and easily adjustable, and should conform to the following conditions:—(1) For saws of a diameter of less than twenty-four inches, the knife should extend from the table at least one inch below the top of the saw; for saws of a diameter of 24 inches or more, the knife should extend from the table to at least nine inches above the table. (2) At the level of the table, the front edge of the knife must not be more than a quarter-of-an-inch from the saw. (3) The thickness of the knife (except at the front edge) should not, as a rule, be less than the breadth of the cut of the saw. In no case should the thickness of the knife be less than this breadth, *minus* one-sixty-fourth of an inch.

(*c*) Top of saw.—This part of the saw should be protected by a guard consisting of a front side plate with a flange at the top, so as to completely cover the teeth. The guard should be strong and quickly and easily adjustable.

(*d*) Front of saw.—The Committee is not, at present, able to recommend for general adoption, any of the guards to which its attention has been called. It hopes, however, that steps will be taken to reduce the risk of accident at the front of the saw, either by guards or by safer methods of working. Automatic feeds are a step in this direction, and the extension of their use is desirable. Many accidents would be avoided by the use of "push sticks," and the Committee considers that a suitable "push stick," at least 18 in. in length, should be provided at every saw bench, and that the sawyer should be prohibited from feeding the saw by hand at the end of the cut.

Application of Safeguards.—The guards recommended herein should be applied to all saw-benches (including rack benches), engaged in ripping, deep cutting, or cross-cutting, but not to swing or other saws which move towards the timber or wood. The guards should be used in all operations except those in which the timber or wood being sawn extends above the top of the saw. Even in these excepted operations, and for swing saws, safeguards should be applied as far as practicable.

Plain Band Saws.—The bottom pulley should be completely enclosed by strong covers of sheet metal or other suitable material. The front of the top pulley should be covered with sheet metal or other suitable material. Between the pulleys, the blade (with the exception of the part between the top guide and the bench) should be guarded at the front and side by a cover of wood or other suitable material. The front part of this cover should extend to a height at least equal to that of the centre of the top pulley.

Planing Machines.—For overhand planing, the "safety" or circular cutter block should always be used. The "bridge" type of guard, adjustable vertically and horizontally, should be provided for overhand planing. Overhand planers should not be used on wood less than fifteen inches in length, except with an automatic feed, or with a suitable holder for the wood. The feed rollers of thicknessing machines, except the combined machine for overhand planing and thicknessing, should be provided with a plate guard.

Spindle Moulders.—In spite of the great variety of work done on vertical spindles, the Committee is satisfied that guards can, and should, be provided and used for most of the operations. Wherever practicable, jigs or holders for the work should be used, and in other cases the use of suitable "push sticks" would reduce the risk of accident.

Chain Mortising Machines.—The chain should be provided with an adjustable guard.

General Precautions.—Reliable striking or control gear, conveniently placed, should be provided on all machines. Efficient means should be provided for exhausting dust from all such circular saws and planing machines as are in frequent use. All shafts, belts and gearing within reach should be securely guarded. Ample space should be allowed for every machine. Floors should not be slippery, and should be kept free from chips and other rubbish.

Lighting.—A good light is specially important in working dangerous machinery, and the Committee recommends the following rules:—(1) Sufficient natural light should be secured to avoid the necessity of using artificial light during daylight. It is hoped that in all new machine shops an effort will be made to secure a good top light. (2) Artificial lights should be adequate, and so placed and shaded as to prevent rays of light from impinging directly on the eyes of the workers. (3) No underground room should be used as a machine shop unless it is at present so used. (4) No underground room shall be used as a machine shop after April, 1920, unless a certificate has been given by H.M. Inspector of Factories that it is suitable for that purpose. This certificate should not be given unless the Inspector is satisfied that the room is suitable as regards construction, light, ventilation, and in all other respects.

Warming.—A minimum temperature of 50 deg. Fahr. should be maintained in machine shops, except in saw-mills which are open to the outside air. In the case of open mills, the workers in winter should be protected, as far as practicable, from wind or draughts of cold air.

Training.—All workers should be carefully trained and instructed as to the danger of woodworking machinery, and no untrained person should be put in charge of a machine.

NEW COMPANIES.

THE particulars quoted below have been compiled by Messrs. Jordan & Sons, Ltd., Company Registration Agents, of 116 and 117, Chancery Lane, W.C. 2, from the documents available at the Companies Registry:—

GEORGE AINLEY & SONS, LTD. (156,550). Registered June 30, 1919. To acquire and carry on the business of joiners, builders, &c. Nominal capital, £5,000.

T. BROOKS, LTD. (155,565). Registered May 28, 1919. To carry on the business of decorators, painters and paperhangers, manufacturers and dealers in colours, &c. Nominal capital, £1,000.

A. & E. CONSTRUCTORS, LTD. (156,015). Registered June 13, 1919. Craven Houses, Kingsway, W.C.2. To carry on the business of architectural and engineering constructors, ironfounders, &c. Nominal capital, £5,000.

DAVISON & PARTNER, LTD., 11, Carteret-street, Queen Anne's Gate, S.W. 1 (156,612). Registered July 2, 1919. To acquire and carry on the business of gas, water, electrical, mechanical and general engineers and contractors. Nominal capital, £25,000.

W. FAIRWEATHER & SON, LTD. (156,844). Registered July 8, 1919. To carry on business of contractors. Nominal capital, £3,000

GREGOR BROS., LTD. (155,581). Registered May 29, 1919. Bathurst-street, South Dock, Swansea. To carry on the business of timber importers, slate and builders', merchants, &c. Nominal capital, £50,000.

JOHN HADFIELD & SONS, LTD. (155,736). Registered June 4, 1919. To acquire and carry on the business of asphalters, asphalte and tar paving manufacturers. Nominal capital, £20,000.

JAGGERS (GRAYS), LTD. (155,552). Registered May 28, 1919. 21, St. Helen's Place, E.C. 3. To carry on the business of builders and contractors. Nominal capital, £5,000.

MAIDENHEAD BRICK & TILE CO., LTD. (155,951). Registered June 11, 1919. Finsbury Pavement House, E.C. To carry on the business of brick and tile manufacturers. Nominal capital, £75,000.

NASH'S INDUSTRIAL INVENTIONS, LTD., 3 and 4, Bury-court, St. Mary's Axe, E.C. (156,946). Registered July 11, 1919. To carry on business of manufacturers of and dealers and agents, in stoves and fire places, &c. Nominal capital, £3,000.

PROVINCIAL CONSTRUCTION CO., LTD. (156,352). 39, West Sunniside, Sunderland. Registered June, 23, 1919. To carry on the business of building and engineering (civil and electrical) contractors. Nominal capital, £20,000.

REDGRAVE, LTD., 96, Effra-road, Brixton, S.W. (156,593). Registered July 1, 1919. To carry on the business of builders and contractors, &c. Nominal capital, £3,000.

THOS. STOCKDALE, LTD. (155,518). Registered May 24, 1919. St. Cuthbert's-road, Gateshead. To acquire and carry on the business of joiners and timber merchants. Nominal capital, £3,000.

ALBERT TURNER & SON, LTD. (155,790). Registered June 5, 1919. 2, Gresham Buildings, Guildhall, E.C.2. To acquire and carry on the business of timber merchants. Nominal capital, £100,000.

VICTORIA WOOD CO., LTD. (15,606). Registered May 29, 1919. To carry on business as timber merchants, &c. Nominal capital, £15,000.

J. L. WILD & CO., LTD. 180, Piccadilly, W. 1. (156,586). Registered July 1, 1919. To carry on business of civil, mechanical, electrical, sanitary and all other kinds of engineering contractors and builders. Nominal capital, £20,000.

YORKSHIRE MOULDINGS, LTD. (155,534). Registered May 27, 1919. To acquire and carry on the business of English and foreign timber merchants, wood turners, moulding manufacturers, &c. Nominal capital, £1,000.

A NEW SILENT FLUSHING CISTERN.

THE A1 flushing cistern, manufactured by Messrs. Allied Industries, Ltd., of 6, Crosby-buildings, E.C.3, is designed upon new principles. The pressure for the discharge is obtained by compressed air, which is admitted through a valve at the top, when the water is discharged and compressed by the incoming water until the water and air are of the same pressure. The water pressure in the main is utilised to automatically seal any further overflow, until the pressure is released by flushing. When a lever, which actuates the centre rod of the valve, is operated, the pressure is released from the top of the valve and transferred to the underside, and the valve, which is lifted to its maximum height, is held by the discharge pressure until the contents of the cistern have been discharged to the amount for which it had been adjusted. There is a minimum pressure of 5 lb. per square inch, and the water is discharged at practically double the velocity of the ordinary cistern. The cistern is suitable for high- or low-pressure systems, and gives a two-gallon discharge. The action of the water entering and leaving the cistern is absolutely silent, and the sound of the water entering the pedestal is deadened by a lid; this, we understand, is to be further improved by the fitting of a sound-proof device between the seat and the lid. We recently had an opportunity of inspecting an A1 cistern at the firm's works, which had been operated over 15,000 times, and was still working satisfactorily. The pedestal and cistern are fitted as one unit, the cistern being encased with polished wood and placed at the back. The cistern can also be fitted to existing pedestals or attached to the wall in the ordinary manner. In the former case it is operated by a push-button, and in the latter case by a lever to which any length of chain or cord can be attached.

PATENTS.

APPLICATIONS PUBLISHED.*

130,121.—H. Christiansen: Tamping apparatus for use on railways.

130,134.—J. Roberts, J. Thomas and I. Williams: Manufacture of tiles, bricks, pottery, and coarse ware.

130,153.—R. C. Wheeler: Sash fastener.

130,158.—G. Whittaker: Shower bath attachments for bath tubs.

130,176.—P. S. Swan: Ploughs particul rly adapted for motor haulage.

130,182.—J. T. Hardaker: Lifting and transporting apparatus.

130,192.—B. Davis: Safety appliance for use in window cleaning.

130,193.—A. G. Westwood: Extensible tables.

130,204.—J. Whittaker: Size for building and other purposes.

121,473.—G. W. Otterson: Methods and apparatus for cleaning sewers.

130,275.—F. W. Schroeder.: Locks.

***All these Applications are now in the stage in which opposition to the grant of Patents upon them may be made.**

Wages in Scotland.

The Ministry of Labour announces that the difference affecting building trade operatives in Dumfriesshire, Kirkcudbrightshire and Wigtonshire has been referred by the Ministry of Labour for determination under the wages (Temporary Regulation) Acts to the Court of Arbitration established under those Acts. The claims of the workpeople are for a standard rate of 1s. 8d. per hour for masons, joiners, plasterers and slaters, for a 44-hour working week, and also for 1s. 4d. per hour for labourers, for a 44-hour working week, as from April 1, 1919. The hearing was to have taken place on August 7, at the Christian Institute, 70, Bothwell-street, Glasgow.

RATES OF WAGES IN THE BUILDING TRADE.

THE following are the present rates of wages in the Building Trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters	Masons' Labourers.	Bricklayers' Labourers	Plasterers' Labourers.
Aberdare	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/4½	1/4½	1/4½
Accrington	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½		1/3½–1/3½	
Altrincham	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½		1/4½–1/4½	
Ashton-under-Lyne	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½		1/4½–1/4½	
Barnsley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/4½	1/4½	1/4½
Barrow-in-Furness	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½		1/4½–1/4½	
Barry	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/4½	1/4½	1/4½
Bath	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/4½	1/4½	1/4½
Bedford	1/1	1/2	1/2	1/1	1/1	1/1	10	10	10	10
Birkenhead	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½		1/4½–1/4½	
Birmingham	1/9½	1/9½	1/9½	1/9½	1/9½	1/8½	1/8½	1/6½	1/6½	1/6½
Bishop Auckland	1/9½¶	1/9½¶	1/9½¶	1/9½¶	1/9½¶	1/9½¶	1/9½¶	1/5½¶	1/5½¶	1/5½¶
Blackburn	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½		1/3½–1/3½	
Blackpool	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½		1/3½–1/3½	
Bolton	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½		1/4½–1/4½	
Bournemouth	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/1½	1/1½	1/1½
Bradford	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/5½	1/5½	1/5½
Bridgwater	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/2½	1/2½	1/2½
Brighton	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/4½	1/2½	1/2½	1/2½
Bristol	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/7½	1/7½	1/5½	1/5½
Burnley	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½		1/3½–1/3½	
Burton-on-Trent	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/6½	1/4½	1/4½	1/4½
Bury	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½		1/4½–1/4½	
Cambridge	1/2½	1/2½	1/2½	1/2½	1/2½	1/2½	1/1	11½	11½	11½
Cardiff	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/4½	1/4½	1/4½
Chatham	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/5½	1/-½	1/3½	1/3½
Chelmsford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/1½	1/1½	1/1½
Cheltenham	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/4½	1/4½	1/4½
Chester	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½		1/3½–1/3½	
Chesterfield	1/4½	1/4½	1/4½	1/6½	1/6½	11	1/-	8–8½	8–8½	8–8½
Colchester	11	11½	11½	1/-	11	1/-	9½	9½	8½	8½
Coventry	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/5½	1/5½	1/5½
Crewe	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½		1/2½–1/2½	
Darlington	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/5½§	1/5½§	1/5½§
Derby	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/7½	1/5½	1/5½	1/5½
Doncaster	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/4½	1/4½	1/4½
Dudley	1/6½	1/6½	1/6½	1/6½	1/6½	1/3	1/1	1/3½	1/3½	1/3½
Durham	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/5½§	1/5½§	1/5½§
East Glam. and Mon. Valleys	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/4½§	1/4½§	1/4½§
Exeter	1/3	1/2	1/3	1/3	1/3	1/3	1/2	1/1	1/1	1/1
Folkestone	1/3½	1/3½	1/3½	1/3½	1/2½	1/3½	1/2½	1/-½	1/-½	1/-½
Gloucester	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/3½	1/3½	1/3½
Grantham	1/5½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/3½	1/3½	1/3½
Grays	1/7½§	1/7½§	1/7½§	1/7½§	1/7½§	1/8½	1/6½§	1/5½§	1/3½§	1/3½§
Grimsby	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/5½	1/5½	1/5½
Great Yarmouth	1/2½	1/2½	1/2½	1/2½	1/2½	1/2½	1/1½§	11½	11½	11½
Guildford	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/2½	1/-½	1/-½	1/-½
Halifax	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/5½	1/5½	1/5½
Harrogate	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/4½	1/4½	1/4½
Hartlepools	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/5½§	1/5½§	1/5½§
Hastings	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/2½	1/-½	1/-½	1/-½
Hereford	1/1½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/2½	1/2½	1/2½
Huddersfield	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/5½	1/5½	1/5½
Hull	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/5½	1/5½	1/5½
Ipswich	1/3½§	1/3½§	1/3½§	1/4½	1/4½	1/4½§	1/2½	1/1½	1/1½	1/1½
Lancaster	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½		1/3½–1/3½	
Leamington Spa	11½	1/1½	1/1½	11½	1/1½	1/1½	1/0½	10½	10½	10½
Leeds	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/5½	1/5½	1/5½
Leicester	1/4	1/4	1/4	1/4	1/4	1/4	1/2	1/1½	1/1½	1/2
Lincoln	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3	10½	10	10½
Liverpool	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½		1/4½–1/4½	
Llanelly	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/4½§	1/4½§	1/4½§
London	1/9½	1/9½	1/9½	1/8½	—	1/9½§	1/8½	1/5½	1/5½	1/5½
Loughborough	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/7½	1/5½	1/5½	1/5½
Luton	1/6½§	1/6½§	1/6½§	1/6½§	1/6½§	1/6½§	1/5½§	1/3½§	1/3½§	1/3½§
Maidstone	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/5½	1/4½	1/3½	1/3½
Manchester	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½		1/4½–1/4½	
Mansfield	1/3	1/3	1/3	1/3	1/3	1/3	1/2	1/0½	1/0½	1/1
Merthyr Tydfil	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/4½§	1/4½§	1/4½§
Middlesbrough	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/5½§	1/5½§	1/5½§
Newcastle-on-Tyne	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/5½§	1/5½§	1/5½§
Newport, Mon.	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/4½§	1/4½§	1/4½§
Northampton	1/3	1/3	1/3	1/3	1/3	1/3	1/2	1/0½	1/0½	1/0½
Norwich	1/3	1/3	1/3	1/3	1/3	1/3	1/2	1/0½	1/0½	1/0½
Nottingham	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/7½	1/5½§	1/5½§	1/6½
Oldham	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½		1/4½–1/4½§	
Oxford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/4½	1/2½	1/2½	1/2½
Plymouth	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/7½	1/5½	1/5½	1/5½
Pontypridd	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/4½§	1/4½§	1/4½§
Portsmouth	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/1½	1/1½	1/1½
Preston	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½		1/3½–1/3½	
Reading	1/7½	1/6½	1/6½	1/6½§	1/7½	1/6½	1/4½§	1/3½	1/3½§	1/3½§
Rochdale	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½		1/4½–1/4½§	
Rochester	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/5½	1/3½	1/3½	1/3½
Rugby	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/6½	1/4½	1/4½	1/4½§
St. Albans	1/4	1/4	1/6½	1/4	1/4	1/4–1/6	1/1½	1/-	1/-	1/0½
St. Helen's	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½		1/4½–1/4½§	
Scarborough	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/4½	1/4½	1/4½
Sheffield	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/5½	1/5½	1/5½
Shrewsbury	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/6½	1/4½	1/4½	1/4½
Southampton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/1½	1/1½	1/1½
Southend-on-Sea	10	10	10	10	P'cework	10	9	8	8	8
Southport	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½		1/3½–1/3½§	
South Shields	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/5½§	1/5½§	1/5½§
Stockport	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½		1/4½–1/4½§	
Stockton-on-Tees	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/5½§	1/5½§	1/5½§
Stoke-on-Trent	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2½§	1/2½§	1/2½§
Stroud	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½§	1/2½	1/2½	1/2½
Sunderland	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/9½§	1/5½§	1/5½§	1/5½§
Swansea	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/4½§	1/4½§	1/4½§
Taunton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/2½	1/2½	1/2½
Torquay	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/1½	1/1½	1/1½
Wakefield	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/5½	1/5½	1/5½
Walsall	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/4½	1/4½	1/4½§
Warrington	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½		1/4½–1/4½§	
West Bromwich	1/7½§	1/7½§	1/7½§	1/4	1/3½	1/7½§	1/5½§	1/4½§	1/4½§	1/5½
Wigan	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½	1/8½		1/4½–1/4½§	
Windsor	1/4	1/4	1/4	1/4	1/4	1/4	1/2½	1/0½	1/0½	1/0½
Wolverhampton	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/5½	1/4½	1/4½	1/4½
Worcester	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/2½	1/1½§	1/1½§	1/1½§
York	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/7½	1/4½	1/4½	1/4½

The Masons' rate given is for bankers: fixers usually ½d. per hour extra. * War bonus of 2s. per week granted. † War bonus of 3s. per week granted. ‡ War bonus of 3s. 6d. per week granted. ‡‡ War bonus of 5s. per week granted. ¶War bonus of 7s. 6d. per week granted. § These rates include the 12½ per cent. bonus. [The above rates, unless otherwise shown, are exclusive of 12½ per cent. bonus.—ED.]

COMPETITIONS, CONTRACTS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk (✱) are advertised in this number. Contracts iv; Competitions iv; Public Appointments i; Sales by Auction liv. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

BUILDING AND PAINTING.

SEPTEMBER 5.—**Epping.**—The R.D.C. invite tenders for the erection of a cottage at Netteswell. Builders willing to tender for other houses at Theydon Garron, Harlow and Theydon Bois, are requested to send in their names to Messrs. Tooley & Foster, Architects, Buckhurst-hill.

SEPTEMBER 5.—**North Walsham.**—The Commissioners of His Majesty's Works are prepared to receive tenders for the erection of a new repeater station at North Walsham, Norfolk.

SEPTEMBER 6.—**Aberdare.**—PAINTING.—The U.D.C. invite tenders for the painting of Cwmbach and Salem Bridges. Specification of the surveyor, Town Hall Aberdare.

SEPTEMBER 6.—**Lancaster.**—HOUSING.—The Health Committee invite tenders for the erection of six houses in Bowerham-road. Mr. A. G. Bradshaw, borough surveyor, Town Hall, Lancaster.

SEPTEMBER 6.—**Rhondda.**—HOUSES.—The Rhondda Urban District Council invite tenders for the building of houses in connection with their Pengraig Housing Scheme, in blocks of two pairs or upwards. Contractors to give a lump sum price per pair of houses. Quantities at the Council Offices, Pentre. Deposit £2.

SEPTEMBER 7.—**Croydon.**—ADDITIONS, &C.—The Croydon Board of Guardians invite tenders for alterations and additions to the boiler house at the Infirmary. Quantities of Mr. H. Berney, Architect, 33, High-street, Croydon. Deposit, £3 3s.

SEPTEMBER 7.—**Gellygaer.**—ALTERATIONS.—The Gellygaer Urban District Council invite tenders for alterations and additions at the Sexton's House, Gwaelodybrithdir Cemetery, Bargoed. Specifications of Mr. F. Read, Surveyor, Council Offices, Hengoed, *via* Cardiff.

SEPTEMBER 8.—**Clacton-on-Sea.**—The Commissioners of His Majesty's Works are prepared to receive tenders for the erection of a new Post Office.

SEPTEMBER 8.—**Halifax.**—EXTENSION, &C.—The Tramways Committee invite tenders for extension of repairing shed and construction of sand-drying shed, at the tramway depot. Quantities of Mr. J. Lord, Borough Engineer, Halifax. Deposit, £1 for each trade.

SEPTEMBER 8.—**Manchester.**—PAINTING.—The Paving, Sewering, and Highways Committee invite tenders for cleaning down and protection of the steel work of part of Hulme-street Tunnel over the River Medlock. Specifications at the City Engineer's Office, Town Hall, Manchester. Deposit £2 2s.

SEPTEMBER 8.—**Swansea.**—SCHOOLS.—The Education Committee invite tenders for the erection of a new secondary school and the enlargement of the Dynevor-place school for boys. Quantities of Mr. T. J. Rees, Education Offices, Dynevor-place, Swansea. Deposit, £10 10s. Tenders by October 6.

SEPTEMBER 8.—**Whitstable.**—HOUSING.—The U.D.C. nvite tenders for the erection of 51 houses on the Westmeads. Quantities of Mr. G. W. Jones, architect, 10, Oxford-street, Whitstable. Deposit, £1.

SEPTEMBER 8.—**Llanelly.**—HOUSES.—The Corporation invite tenders for the erection of forty-four houses at Capel. Forms of tender of Mr. Henry W. Spowart, Town Clerk, Llanelly. Deposit, £10 10s.

✱SEPTEMBER 8.—**Harleston.**—The Depwade Rural District Council invite tenders for the erection of 10 dwellings for the working classes at Harleston, and eight at Brockdish, 2 miles distant.

SEPTEMBER 8.—**Bradford.**—PAINTING.—The Corporation invites tenders for painting at the Windsor, Morley-street. Specification of the City Architect, Town Hall, Bradford.

SEPTEMBER 8.—**Glasgow.**—PAINTING.—Tenders are invited by H.M. Office of Works for painting work at the Institution of Engineers and Shipbuilders, 39, Elmbank-crescent, Glasgow. Quantities of H.M. Office of Works, 3, Parliament-square, Edinburgh. Deposit, £1 1s.

SEPTEMBER 9.—**Ashford.**—POST OFFICE.—The Commissioners of His Majesty's Works, &c., invite tenders for the erection of a new post office at Ashford (Kent). Quantities from the Director of Contracts, H.M. Office of Works, &c., Storey's Gate, Westminster, S.W. Deposit £1 1s.

SEPTEMBER 9.—**Crook.**—POST OFFICE.—The Commissioners of H.M. Works invite tenders for the erection of a post office at Crook, Durham. Quantities of the Director of Contracts, H.M. Office of Works, Storey's-gate, Westminster, S.W. Deposit, £1 1s.

✱SEPTEMBER 10.—**Aldershot.**—Tenders are required for a contract, from October 1st, 1919, for the execution of works, &c., in the Royal Engineer Sub-district, North Aldershot, by the War Department.

SEPTEMBER 10.—**Maxwelltown.**—HOUSES, &C.—The Maxwelltown T.C. invite tenders for the mason, joiner, slater, plumber, plaster and painter works of type houses in connection with a housing scheme of 86 houses, and (2) the street sewer and contingent works. Quantities of the Architects, Messrs. James Barbour & Bowie, F.R.I.B.A., 27, Castle-street, Dumfries.

✱SEPTEMBER 11.—**Chester.**—The Housing Committee of the Corporation of Chester invite tenders for the erection of the first fifty-four houses on the Buddicom Estate, Hough Green, Chester.

SEPTEMBER 11.—**Ynyshir.**—PAINTING.—Tenders are invited for the painting of the Ynyshir Workmen's Hall and Institute, and adjoining shop. Specifications of Mr. Samuel Jones, Secretary, 36, Church-terrace, Ynyshir, Rhondda.

SEPTEMBER 12.—**Prestwich.**—HOUSING.—The U.D.C. invite tenders for the erection of 32 houses on the Bent-hill estate. Quantities of Mr. S. H. Morgan, surveyor, Bent-hill, Prestwich. Deposit, £2 2s.

✱SEPTEMBER 12.—**Salisbury.**—The Commissioners of His Majesty's Works, Storey's Gate, Westminster, London, are prepared to receive tenders for the extension of the Station Sorting Office, Salisbury.

SEPTEMBER 13.—**Broomley.**—FARM HOUSE, &C.—The Small Holdings and Allotments Committee of the Northumberland County Council invite tenders for the erection of a farm house and farm buildings at Broomley, Stockfields. Specification of the County Land Agent, Moothall, Newcastle.

✱SEPTEMBER 13.—**Brentwood.**—The Metropolitan Asylums Board invite tenders for internal cleaning and painting work at "High Wood," Brentwood, Essex.

✱SEPTEMBER 15.—**Hendon.**—HOUSES.—The U.D.C. invite tenders for the erection of 37 artisans' dwellings at Child's Hill. Specifications of Mr. G. Hornblower, F.R.I.B.A., 2, Devonshire-terrace, Portland-place, W. Deposit, £5 5s.

✱SEPTEMBER 15.—**Isleworth.**—The Commissioners of His Majesty's Works, Storey's Gate, Westminster, S.W. 1, are prepared to receive tenders for the erection of a new Post Office at Isleworth.

SEPTEMBER 15.—**Swaffham.**—COTTAGES.—The Swaffham R.D.C. invite tenders for the erection of three pairs of cottages at Cockley Clay and four pairs at Sporle. Quantities of Mr. J. Owen Bond, architect, 29, Castle Meadow, Norwich.

SEPTEMBER 15.—**Bury.**—ELECTRICITY BUILDINGS.—The Corporation invite tenders for the erection of buildings in connection with the electricity generating station extensions at Chamber Hall, Bury. Quantities of Mr. J. Ainsworth Little, Borough Engineer, Bank-street, Bury. Deposit £2.

SEPTEMBER 15.—**Horwich.**—HOUSES.—The U.D.C. invite tenders for the erection of 120 houses of various types at Lower Braylay. Quantities of Mr. Thomas Green, Surveyor to the Council, Public Hall, Horwich. Deposit £2 2s.

SEPTEMBER 16.—**Leeds.**—MESSROOM.—The Leeds Sewerage Committee invite tenders for the erection of a workmen's messroom, &c. Quantities of the Sewerage Engineer, (Mr. Geo. A. Hart, M.Inst.C.E.), Pearl Chambers, East Parade, Leeds. Deposit £2 2s.

SEPTEMBER 16.—**Leeds.**—PAINTING.—The Board of Guardians invite tenders for the inside painting of section 6 of the Infirmary, Beckett-street. Specifications of Mr. J. H. Ford, Clerk, Poor Law Offices, South Parade, Leeds.

✱SEPTEMBER 16.—**Hunslet.**—The Hunslet Rural District Council invite tenders for the erection of houses (1) at Woodlesford, near Leeds, 86 houses; (2) at Halton, near Leeds, 155 houses.

✱SEPTEMBER 17.—**Pembury.**—The Commissioners of His Majesty's Works, Storey's-gate, London, S.W. 1, are prepared to receive tenders for the erection of cottages at Pembury (South Wales).

SEPTEMBER 18.—**Chapel-en-le-Frith.**—HOUSES.—The R.D.C. invite tenders for the erection of 14 houses at Chapel End. Quantities of Mr. C. Flint, architect, 5, The Quadrant, Buxton. Deposit, £1 1s.

✱SEPTEMBER 18.—**Greenwich.**—The Guardians of the Greenwich Union invite tenders for the execution of work of alteration and adaptation of existing dormitories at the Institution, East Greenwich, into nurses' bedrooms.

✱SEPTEMBER 18.—**London, E.**—The Guardians of the Stepney Union invite tenders for interior painting and distempering work at their Institution at St. Leonard's-street, Bromley-by-Bow, E. 3.

SEPTEMBER 20.—**Elland.**—PAINTING.—Tenders are invited for painting the Congregational Church. Specifications of Mr. B. Hanson, Langdale Post Office, Elland.

✱SEPTEMBER 20.—**Witney.**—The Witney Urban District Council invite tenders for the erection of fourteen working-class houses at Witney.

SEPTEMBER 20.—**Hove.**—PAINTING.—The Corporation invite tenders for painting and distempering walls, ceilings, &c., at the Hove Sanatorium, Portslade. Specifications of Mr. H. H. Scott, Borough Engineer, Hove.

✱SEPTEMBER 22.—**Swansea.**—SCHOOL, &C.—The Swansea Education Committee invite tenders for the erection of a new secondary school for girls and enlargements of the existing one for boys, in Dynevor-place, Swansea.

✱SEPTEMBER 23.—**Wembley.**—HOUSES.—The Wembley Urban District Council invite tenders for the erection of 18 houses on the Christchurch Estate, Wembley. Alternative tenders are desired for the erection of the houses in other forms of construction than brick. Quantities of the Surveyor to the Council, Council Offices, Wembley. Deposit £2 2s.

✱SEPTEMBER 23.—**Aberdare.**—The Aberdare U.D.C. invite tenders for the following works, viz.:—1. Abernant Housing Scheme:—(a) The construction of roads, footpaths, sewers, and other works incidental to the laying-out of the site; (b) the erection of 16 houses on the site in blocks of four. 2. Cwmneol Housing Scheme:—(a) The construction of roads, footpaths, sewers and other works incidental to the laying-out of the site; (b) the erection of 72 houses on the site, in pairs and blocks of four.

✱SEPTEMBER 26.—**London, E.C.**—The Commissioners of His Majesty's Works, Storey's Gate, Westminster, S.W. 1, invite tenders for the erection of a telephone exchange at the corner of Great Tower-street, St. Dunstan's Hill, E.C.

SEPTEMBER 29.—**Stratford-upon-Avon.**—The Borough of Stratford-upon-Avon invite tenders for the following work:—(1) Erection and completion of 70 houses in the Evesham-road, in the said Borough; (2) the construction of roads and sewers in connection with the scheme.

OCTOBER 1.—**Orsett.**—The Orsett Rural District Council invite tenders for the erection of 32 houses in the parish of Little Thurrock, Grays, Essex.

✱OCTOBER 6.—**London, E.**—The London County Council invite tenders for the supply and erection of oak wrought framed, moulded and braced carriage and foot gates to the Royal entrance at Victoria Park, E.

NO DATE.—**Tamworth.**—HOUSES.—The R.D.C. invite tenders for the erection of two or more houses up to forty on the Kettlebrook site. Quantities of Messrs. Newton & Cheatle, 39, Newhall-street, Birmingham.

✱NO DATE.—**Margate.**—Messrs. Bobby & Co., Ltd., invite tenders for the erection of hoardings on the Sandgate-road and Albion-terrace-mews fronts, and also for demolition works.

✱NO DATE.—**Wednesfield.**—The Wednesfield Urban District Council invite tenders for the erection of fifty cottages.

✱NO DATE—**Barnack.**—The Barnack Rural District Council invite tenders for the erection of eight houses at Barnack, together with the necessary site works, drainage, &c., also tenders for the erection of four houses at Duddington, together with the necessary site works, drainage, &c.

FURNITURE, MATERIALS, etc.

SEPTEMBER 6.—**Stepney.**—MATERIALS.—The Borough Council invite tenders for the supply of materials required for the various public services. Forms of tender of Mr. H. W. Jameson, Borough Engineer, 15, Great Alie-street, Whitechapel, E.

SEPTEMBER 9.—**Barking.**—MATERIALS.—The U.D.C. invite tenders for tools, road materials, cement, bricks and other materials. Forms of tender of Mr. H. Hargreaves, Clerk, Public Offices, Barking.

SEPTEMBER 18.—**Lambeth.**—MATERIALS.—The B.C. invite tenders for road materials, disinfectants, &c. Forms of tender of Mr. H. E. Anderson, Borough Engineer, Lambeth Town Hall, Brixton Hill, S.W.

SEPTEMBER 20.—**Falkirk.**—STORES.—The Cross Chemical Co., Ltd., Falkirk, invite tenders for the supply of stores for their Camelon Works, for six months. Schedules of Mr. James Ford, Secretary, 19, Hope-street, Glasgow.

ENGINEERING, IRON AND STEEL.

SEPTEMBER 5.—**London.**—RAILWAY MATERIAL.—The Bombay, Baroda, and Central India Railway Co. invite tenders for the supply of (1) transverse steel sleepers and keys; (2) dog spikes. Specification of Mr. S. G. S. Young, Secretary, 110, Bishopsgate, London, E.C. 2. Fee £1.

SEPTEMBER 6.—**Romsey.**—CONCRETE BRIDGE.—The R.D.C. invite tenders for the construction of a reinforced concrete bridge at Rixes Ford, West Weelow. Specifications of Mr. C. W. P. Dyson, District Surveyor, 2a, Abbey Water, Romsey.

SEPTEMBER 8.—**Tynemouth.**—BRIDGES.—The Corporation invite tenders for the erection of a number of reinforced concrete bridges, each of 25 ft. span, for the carrying of colliery railways over an intended road. Quantities of Messrs. E. Coignet, Ltd., 20, Victoria-street, London, S.W., or of the Borough Surveyor, Tynemouth. Deposit £2 2s.

SEPTEMBER 9.—**Tynemouth.**—WHARF.—Tenders are invited for the erection of a reinforced concrete wharf about 417 ft. by 50 ft., upon the North Bank of the River Tyne. Quantities of the Considere Construction Co., 5, Victoria-street, London, S.W.1, or of Mr. John F. Smillie, borough surveyor, Tynemouth. Deposit £2 2s.

SEPTEMBER 9.—**Bristol.**—WATER TANK.—The Bristol Guardians invite tenders for providing and fixing a water tank at the Stapleton Institution. Specification of Mr. J. J. Simpson, clerk, St. Peter's Hospital, Bristol.

SEPTEMBER 12.—**Annfield Plain.**—ELECTRICITY SYSTEM.—The Annfield Plain Urban District Council invite tenders for the construction of an overhead low-tension electricity distributing system throughout the Urban District. Specifications of Mr. J. H. Senior, Clerk, Council Offices, Annfield Plain, Durham. Deposit £2 2s.

SEPTEMBER 15.—**Southend-on-Sea.**—TRAMWAY RAIL.—The Corporation invite tenders for the supply of 150 tons Sandberg silicon steel tramway rails (British Standard No. 5). Specifications of Mr. R. H. Dyer, Borough Engineer, Municipal Buildings, Southend-on-Sea.

SEPTEMBER 16.—**Baildon.**—STEAM ROLLERS, &C.—The U.D.C. invite tenders for the supply of a 12-ton steam roller, and detached road scarifier, and a petrol lorry with tipping arrangement. Mr. J. Bentley, Clerk, Council Offices, Baildon.

ROAD, SANITARY, AND WATER WORKS.

SEPTEMBER 6.—**Middlesbrough.**—SEWERS.—The Corporation invite tenders for the construction of sewers, &c., on the housing site at Marton-grove. Quantities of Mr. S. E. Burgess, Borough Engineer, Middlesbrough.

SEPTEMBER 7.—**West Bromwich.**—ROADS, &C.—The Corporation invites tenders for the construction of roads and sewers in connection with their housing scheme. Quantities of Mr. A. D. Greatorex, Borough Engineer, Town Hall, West Bromwich.

SEPTEMBER 8.—**Letchworth.**—ROADS AND SEWERS.—The Letchworth Urban District Council invite tenders for the construction of roads and sewers at Letchworth, Herts. Quantities of Mr. George Brown, Clerk, Council Offices, 103, Broadway Chambers, Letchworth. Deposit £2 2s.

SEPTEMBER 8.—**Llanelly.**—ROADS AND SEWERS.—The Corporation invite tenders for the construction of roads and sewers in connection with the erection of forty-four houses at Capel. Forms of tender of Mr. Henry W. Spowart, Town Clerk, Llanelly. Deposit £10 10s.

SEPTEMBER 9.—**Southgate.**—ROADS.—The U.D.C. invite tenders for re-surfacing carriage ways on Southgate main road, &c. Specifications of Mr. D. S. Sutherland, Council Offices, Palmer's Green, N.

SEPTEMBER 10.—**Reigate.**—SEWER.—The T.C. invites tenders for the construction of about 600 yards of 12 in. and 9 in. surface water sewer, with manholes and gullies, in Reigate-road. Specifications of the Borough Engineer and Surveyor, Municipal Buildings, Reigate.

SEPTEMBER 10.—**Watford.**—SEWERAGE, &C.—The Urban District Council invite tenders for the construction of sewerage and street works, including the laying of about 240 yards of 9 in. sewers, the construction of a road about 150 yards in length, and other appurtenant works. Quantities from Mr. D. Waterhouse, Surveyor, Council Offices, 14, High-street, Watford. Deposit £1.

SEPTEMBER 13.—**Hayes.**—ROADS AND SEWERS.—The U.D.C. invite tenders for the construction of roads, sewers, &c., in connection with the Government housing scheme. Quantities of Mr. D. C. Fidler, Surveyor, Hayes. Deposit £2 2s.

SEPTEMBER 13.—**Rotherham.**—SEWERS.—The R.D.C. invite tenders for the construction of 1,800 yards of 12 in. by 9 in. stoneware pipe sewers, &c., at Laughton-en-le-Morthen and Brampton-en-le-Morthen. Quantities of Mr. C. O. Rawstron, Engineer, Imperial Buildings, Rotherham. Deposit £2 2s.

SEPTEMBER 15.—**St. Helens.**—PAVING.—The T.C. invite tenders for granite paving in Hale for Borough Road, College-street and Sutton-road. Quantities of Mr. A. W. Bradley, Borough Surveyor, Town Hall, St. Helens. Deposit, £1 1s.

✱SEPTEMBER 23.—**Wembley.**—ROADS AND SEWERS.—The Wembley Urban District Council invite tenders for the construction of roads and sewers in connection with their housing scheme on the Christchurch Estate, Wembley. Quantities of the Surveyor to the Council, Council Offices, Wembley, Middlesex. Deposit £2 2s.

Auction Sales, Tenders, &c.

✱SEPTEMBER 5.—**Colnbrook, Bucks.**—Messrs. Robert Newman & Son will sell by auction quartering, feather-edge boarding, galvanised iron sheets, &c. Catalogues from the Auctioneers, Harlington, Midd.

✱SEPTEMBER 10 AND 17.—**Knotty Ash, Liverpool.**—Messrs. Newell, Harrop & Gibson will sell by direction of the Disposal Board over 430 huts and buildings at the Knotty Ash Camp, Liverpool, a very large variety of various sizes.

✱SEPTEMBER 10.—**Holmbury.**—Messrs. Crows will sell by order of the Disposal Board, 32 capital huts, at Holmbury Camp, Surrey.

✱SEPTEMBER 11.—**London, S.W.**—Messrs. Veryard & Yates will sell valuable timber and building material, &c., from demolition of large buildings in Oxford-street.

✱SEPTEMBER 16, 17 AND 18.—**London.**—Messrs. Geering & Colyer will sell by order of the Ontario Government and Maple Leaf Club Committee, at 11, 13, and 15, Grosvenor-gardens, S.W. 1, and the Maple Leaf Club Hut, Grosvenor-gardens, a quantity of sanitary fittings, timber, &c., also furniture, bedding and effects.

✱SEPTEMBER 18, 19.—**Slimbridge.**—Messrs. Bruton, Knowles & Co. will sell by direction of the disposal Board, at H.M. Magazine, Old Hurst, Slimbridge (12 miles from Gloucester) six sectional wooden hut buildings, mess room, officers' quarters, &c.

✱SEPTEMBER 22.—**London, E.C.**—Messrs. Leopold Farmer & Sons will sell, with possession, at Winchester House, Old Broad-street, E.C., valuable freehold building site, Moscow-road, Bayswater, W.

✱SEPTEMBER 25.—**Walthamstow.**—Messrs. Daniel Watney & Sons will seell, in one lot, at Winchester House, Old Broad-street, E.C., compact freehold building estate, Chestnuts Farm, 67½ acres, ripe for immediate development, with long frontages to Chingford-road, &c.

✱SEPTEMBER 26.—**Uxbridge.**—Messrs. Knight, Frank & Rutley will sell at the Hanover-square Estate Room, four small dwelling houses at Uxbridge, well-placed business premises, building land, small licensed premises known as "The Cricketers Arms," small holding 35½ acres, allotment ground, also orchard land 10½ acres.

✱NO DATE.—**Tangmere and Ford.**—Sales by tender by Order of the Disposal Board, Ministry of Munitions. Tangmere Aerodrome for disposal as an aerodrome. Area 198½ acres. Ford (Littlehampton) Aerodrome, Sussex, for disposal as an aerodrome. Area 167 acres.

✱NO DATE.—**Elmswell.**—Sales by tender by order of the Disposal Board (Ministry of Munitions). Elmsworth Aerodrome, Suffolk, for disposal as a whole, or the building and land on which they stand, without the aerodrome itself. The buildings are of corrugated asbestic sheeting, brick, corrugated iron and timber. There is a water supply, and electric light plant, permanent roads, &c.

Competitions.

(*For list of Competitions Open, see page 237.*)

Public Appointments.

✱SEPTEMBER 5.—**Merton.**—The Merton and Morden U.D.C. invite applications for the appointment of a fully-qualified architectural and surveying assistant.

✱SEPTEMBER 6.—**Stratford, E.**—Instructors wanted in bookkeeping, chemistry, commercial arithmetic, foundry work, machine construction and drawing, motor-car engineering, plumbing, and sanitary science, quantity surveying and structural mechanics, at the Municipal Technical Institute, Romford-road.

✱SEPTEMBER 8.—**London.**—Architects are invited to apply for five vacancies on the Staff of the Board of Agriculture and Fisheries. The work is of a supervisory character in connection with the equipment of smallholdings for land settlement. The salaries attached to the posts vary between £300 and £600 per annum. Preference will be given to ex-Service men.

✱SEPTEMBER 9.—**Ampthill.**—The Ampthill R.D.C. require the services of an architect to prepare plans, specifications and estimates for the erection of about 200 cottages in various parts of their rural district.

✱SEPTEMBER 10TH.—**Tunbridge Wells.**—The Tunbridge Wells Rural District Council invite applications for the appointment of a qualified Architectural and Surveying Assistant. Salary £5 per week, the Council providing Motor Cycle.

✱SEPTEMBER 13.—**Coventry.**—The General Works Committee of the Corporation of the City of Coventry is prepared to receive applications for the appointment of a Building Inspector in the City Engineer's Department. The appointment will be temporary, but will be of at least twelve months' duration.

✱SEPTEMBER 13.—**Buntingford.**—The Buntingford Rural District Council require the services of a Clerk of the Works for their Housing Scheme.

SEPTEMBER 13.—**Newmarket.**—The Newmarket R.D.C. invite applications from fully-qualified men for the appointment of Quantity Surveyor in connection with their Housing Scheme.

SEPTEMBER 17.—**Blackburn.**—Applications are invited for the appointment of a fully qualified Quantity Surveying Assistant, in connection with the Council's housing schemes. Salary £300 per annum.

SEPTEMBER 18.—**Watford.**—The Watford Urban District Council invite applications for the appointment of Inspector of Buildings and private streets improvements.

✱SEPTEMBER 20.—**Woolwich.**—The Metropolitan Borough of Woolwich invites applications for an assistant in the Borough Engineer's Department. Salary £300 per annum, inclusive.

✱SEPTEMBER 20.—**Lambeth, S.E.**—The Metropolitan Borough of Lambeth invite applications for the position of Architect in connection with the Housing Scheme to be carried out by the Borough Council.

SEPTEMBER.—**Leicester.**—The Director of Education of the City of Leicester invites applications for the appointment of a full-time Instructor in Plumbing and the Allied Building Trade subjects. Salary £350 per onnum.

"Cat-Ar" Construction.

A party of members of the Institution of Municipal Engineers visited Hertford recently to inspect the first building to be erected on the "Cat-Ar" construction system. The members were received by Mr. Pemberton Billing, M.P., who gave a demonstration of his patent stove and central heating system. They were then conducted over the house now being built upon the "Cat-Ar" system of reinforced concrete blockwork, by Mr. Albert C. Freeman, of Messrs. Freeman and Wright, architects to "Cat-Ar Constructions, Ltd. It was explained by Mr. Freeman that had the company been able to secure sufficient bricklayers, the arch and end walls would have been completed within eighteen days. It is claimed that the cost of these buildings is 30 per cent. cheaper than brick-built structures, and the erection more rapid. The "Cat-Ar" construction consists of concrete blocks with continuous reinforcement bonded into each course of the blockwork. When completed, the structure becomes a solid mass of reinforced concrete. Being built on the Calenairian arch principle, no slates or tiles are used for covering the building; no rain-water pipes or gutters are employed, and no timber is used in the construction of the roof. The external walls are being finished in rough-cast cement work, and the insulation half-timber work in the gables finished to match block timbering. The whole of the sashes are "Gibbons," and the woodwork throughout the building is being treated with "Solignum." The exterior of the building is treated with "Cuteline," which gives the appearance of thatching.

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

IN these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works, at the time of publication, have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; L.G.B. for Local Government Board; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council

ARDSLEY.—Plans passed by U.D.C.: Shop, Fall-lane, for the Morley Industrial Co-operative Society; offices, &c., Ardsley Mills, for Messrs. T. Ambler & Sons.

AYLESBURY.—Plans passed by R.D.C.: Four houses at Lower Winchendon, for Colonel Bernard.

BUXTON.—The T.C. has decided to proceed with the reconstruction of the national baths.

CAMBUSLANG.—Plans have been passed by the Middle Ward District Committee of Lanark for the erection of houses on two sites in the Cambuslang area, at Wellshot Cottages and the Croft. The ground extends to nearly 30 acres. The houses are to be of the semi-detached type of three, four, and five apartments, with front and back gardens.

CHIRK.—The R.D.C. has adopted plans for building 136 houses on the seventeen acre site at Lower Chirk Green.

COVENTRY.—The T.C. has under consideration an extensive scheme for improving and widening the principal thoroughfares in the centre of the city

EAST BARNET VALLEY.—Plans passed by U.D.C.: New stable in Falkland-avenue, for Mr. E. Roberts; two houses at Hadley Highstone, for Mr. E. Weber; extension to existing tin works at New Southgate, for Messrs. Carr & Son; addition at Caxton House, Victoria-road, for Mrs. Easton; alteration to scullery at Wittenham, Lyonsdown-road, for Mr. F. Lucas, lavatory, cloak room and cycle store at New Southgate; for Messrs. J. Tylor & Sons, Ltd.

ETON.—The R.D.C. has passed the plans for a house at Gerrard's Cross, for Mr. H. Collett.

LLANDUDNO.—The U.D.C. has asked the Works Committee to submit plans and estimates for an open-air swimming bath to be erected on the shore between the pier and the Marine Drive toll-gate.

MAIDSTONE.—Tenders, amounting to £144,665 have been accepted by the T.C., for the erection of 162 houses.

ORSETT.—The surveyor, Mr. G. F. Andrassy, has been instructed to prepare a planning scheme for houses at Stanford-le-Hope.

SCUNTHORPE.—It has been decided by the U.D.C. to extend the gas works at an estimated cost of £10,000.

SHEFFIELD.—The T.C. has now submitted plans for a further 752 houses to the Ministry of Health. These are in addition to plans for 658 houses now building under the Sheffield Housing Scheme, plans for which were approved some weeks ago.

SPENBOROUGH.—Plans passed by U.D.C.: Picture house, Bradford-road, for Messrs. Goodalls, Pictures, Ltd.; house, Liversedge Hall-lane, for Mr. A. Armitage; four houses, Cornwall-lane, for Mr. S. Beaumont.

STEEPLE CLAYDON.—A housing scheme, submitted by Sir Harry Verner, has been approved by the Buckingham R.D.C.

STOCKTON.—Plans passed by R.D.C.: Five houses, Cowper Bewley Road, for the Furness Shipbuilding Co. Mr. E. Smith has plans before the Council for a butcher's shop, slaughter house, &c., at Haverton Hill.

WHARRAM.—The East Riding C.C. has requested its engineers, Messrs. Fairbank & Son, to gauge certain springs near Wharram, and to report on a scheme for a proposed water supply for the nine Dale villages in the Norton, Driffield, and Bridlington rural areas.

YARMOUTH.—Plans passed by T.C.: Alterations to fish-curing premises, Swirle's Place, for Bruce & Co.; drapery and furnishing stores, Regent Street, for Messrs. Arnolds; fish-curing premises, Southtown Road, for Mr. J. Pitchers; alterations to premises, Southgates Road, for the Home & Colonial Steam Fishing Co., Ltd.; premises, Runham Vauxhall, for Mr. L. Shipp; fishing premises, Riverside, Gorleston, for Mr. J. Pitchers.

FIRES

ABERYSTWYTH.—The Waterloo Hydro has been completely destroyed by fire.

CARDIFF.—Great damage has been done by fire to the premises of Messrs. Morgan & Richardson, tent and sun blind manufacturers, 20, Womanby-street.

GLASGOW.—Damage amounting to £10,000 has been caused by fire at the Scottish Co-operative Wholesale Society's cabinet-making and preserve works, Shieldhall.

NEWQUAY.—Damage, estimated at between £6,000 and £7,000 has been caused by fire at the Edgcumbe Hotel, Newquay.

SUFFOLK.—Kenton Hall, one of the fine old moated mansions of Suffolk, the residence of Mr. H. Capon, has been destroyed by fire.

* See also our List of Competitions, Contracts, etc

PRICES CURRENT OF MATERIALS.*

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry. Since our last issue several prices have been revised.—Ed.]

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge. £ s. d.

Best Stocks 3 16 6

Per 1000, Delivered at London Goods Stations.

	£ s. d.		£ s. d.
Flettons	2 15 6	Best Blue Pressed Staffordshire ...	9 3 6
Best Stourbridge Fire bricks	10 10 0	Do. Bullnose ..	9 8 6
		Blue Wire Cuts	7 13 6
GLAZED BRICKS—			
Best White, Ivory, and Salt Glazed Stretchers ..	21 10 0	D'ble Str'tch'rs	28 10 0
		D'ble Headers	25 10 0
		One Side and two Ends ..	29 10 0
Headers.....	21 0 0	Two Sides and one End	30 10 0
Quoins, Bullnose and 4½in. Flats	26 10 0	Splays and Squints.....	28 0 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

	s.	d.		
Thames Ballast	15	6	per yard,	delivered
Pit Sand	18	6		
Thames Sand	20	0	,, ,,	2 miles
Best Washed Sand	19	0	,, ,,	radius
½in. Shingle for Ferro-Concrete	18	0	,, ,,	Paddington.
¼in. ,, ,, ,,	19	0	,, ,,	

Per ton. delivered in London area.

	£ s. d.		£ s. d.
Best Portland Cement	3 18 6	..	3 16 6

66/6 alongside at Vauxhall in 80-ton lots.

Ferrocrete per ton extra on above. 5 0

Best Ground Blue Lias Lime 2 10 0 at riv. depot.

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks. The sacks are charged at 2s. 6d. each and credited at 2s. each if returned in good condition within three months.

Grey Stone Lime ..... 55s. 0d. per ton delivered.

Stourbridge Fireclay in sacks 42s. 6d. per ton at riv. dpt.

STONE.

	s.	d.
BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube.....	2	0
Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R., per ft. cube	2	1½
Do do. delivered on road waggons at Nine Elms Depot	2	2¼
PORTLAND STONE—		
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L. & S.W.R., South Lambeth Station, G.W.R., and Mileage Station G.W.R., per ft. cube	3	6½
Do. do. delivered on road waggons at above stations, per ft. cube..	3	7½

White basebed, 3d. per ft. cube extra.

NOTE.—½d. ft. cube extra for every foot over 20 ft. *average.*

	s.	d.		s.	d.
RANDOM BLOCKS—Per Ft. Cube, delivered at Rly. Dpot.					
Ancaster in blocks	3	2	Closeburn Red Freestone	3	4
Beer in Blocks	1	11			
Grinshill in blocks	2	9	Red & White Mansfield random block	5	2
Darley Dale in blocks	3	2	Yellow Magnesian Limestone do. do	4	2

	s.	d.
YORK STONE, BLUE—*Robin Hood Quality.* Delivered at any Goods Station London.		
Scappled random blocks .....Per Ft. Cube	7	0
6 in. sawn two sides landings to sizes (under 30 ft. super.) .....Per Ft. Super	5	6
6 in. rubbed two sides, ditto ..... ,,	6	2
3 in. sawn two sides slabs (random sizes) ,,	2	5
2 in. to 2½ in. sawn one side slabs (random sizes) ..... ,,	1	5½
1½ in. to 2 in. ditto, ditto ..... ,,	1	3
HARD YORK— Delivered at any Goods Station London.		
Scappled random blocks .....Per Ft. Cube	6	0
6 in. sawn two sides landing to sizes (under 40ft. super.) .....Per Ft. Super	5	0
6 in. rubbed two sides ditto ..... ,,	6	0
4 in. sawn two sides slabs (random sizes) ,,	2	10½
3 in. ditto, ditto ,,	2	2
2 in. self-faced random flags ..Per Yard Super	6	10

WOOD.

(The following prices are the Controller's prices fixed Feb. 7, 1919. The control is now removed.)

Pursuant to paragraph 3 of the Timber Control Order, 1918, the Controller of Timber Supplies hereby gives notice that until further notice the following shall be the maximum prices at which imported timber may be sold. These prices are per standard landed and in store.

WHITE SEA REDWOOD.

Inches	1st £ s.	2nd £ s.	3rd and unsorted £ s.	4th £ s.
4 × 11	54 10	52 10	49 10	47 10
4 × 9	50 10	48 10	45 10	43 10
4 × 8	47 10	45 10	42 10	40 10
4 × 7	47 10	45 10	42 10	40 10
3 × 8	46 10	44 10	41 10	39 10
3 × 7	46 0	44 0	41 0	39 0
3 × 6	45 10	43 10	40 10	38 10
3 × 5	45 10	43 10	39 10	37 10
2½ to 3 × 11....	53 10	51 10	48 10	46 10
2½ to 3 × 9....	48 0	46 0	43 0	41 0
2½ × 7 to 8.....	46 0	44 0	41 0	39 0
2½ × 6	45 10	43 10	40 10	38 10
2½ × 5	45 10	43 10	39 10	37 10
2 × 11	53 10	51 10	48 10	46 10
2 × 9	48 0	46 0	43 0	41 0
2 × 8	46 10	44 10	41 10	39 10
2 × 7	46 0	44 0	41 0	39 0
2 × 6	45 10	43 10	40 10	38 10
2 × 5	44 10	42 10	39 10	37 10
2 × 4	44 10	42 10	40 0	38 0

UNSORTED LARCHWOOD at 3rd Archangel Redwood Prices.

Boards, 1st and 2nd, £1 10s. extra.
Boards, 3rd and 4th, £1 extra.

WOOD (*Continued*).

FEATHER EDGED BOARDS, £10 10s. per std.

SAWN LATHS, 3s. per bundle.

U/S SLATING BATTENS (yellow and white and strips), £35.

SWEDISH AND NORWEGIAN FLOORING AND MATCHING.

U/S Red and White.

Per 100ft. super.	Per 100 ft. super
1¼in. P.E. at 60/-	⅞in. P.E. at 30/-
1¼in. P.E. at 50/-	⅞in. P.E. at 25/6
1in. P.E. at 40/-	⅝in. P.E. at 20/6
⅞in. P.E. at 35/-	

T. & G. and Match Lining at 6d. per square extra.

PLANED BOARDS—11 in., £45 per standard; 10 in., £43 per standard; 9 in., £43 per standard; 8 in., £41 per standard.

YELLOW PINE.

Inches	1st £ s.	2nd £ s.	3rd £ s.	4th £ s.
3 × 12 and up ..	67 0	55 0	50 10	44 0
3 × 11.....	64 0	53 0	48 10	44 0
3 × 10.....	58 0	48 0	44 0	42 0
3 × 9.....	57 0	47 0	43 0	41 0
3 × 8.....	55 0	45 0	42 0	39 0
3 × 7.....	55 0	45 0	42 0	39 0
3 × 6 and down	52 0	42 0	40 0	37 0

For complete specification and controlled prices, see "London Gazette," February 7, 1919.

Dry Wainscot Oak, per ft. super, as inch	0	2	6	to	0 3 0
¾ in. do. do.	0	2	0	to	0 2 6
Dry Mahogany—Honduras, Tabasco, African, per ft. super, as inch	0	2	6	to	0 3 0
Cuba, Mahogany	0	3	6	to	0 4 0
Teak (Rangoon, Moulmein or Java), per load.. ..	60	0	0	to	85 0 0
American Whitewood planks, per ft. cube ..	0	18	0	to	1 0 0
Scotch Glue, per cwt.	5	5	0	..	—
Liquid Glue, per gallon ..	0	17	0	..	—

SLATES.

1st quality slates from Bangor or Portmadoc in truck load delivered London area. Per 1,000 of 1,200.

		£ s. d.
Best Blue Bangor Slates,	24 by 12	48 10 0
,, ,,	22 by 12	35 0 0
First quality ,, ,,	22 by 11	32 5 0
,, ,,	20 by 12	32 0 0
Best Blue Portmadoc ,, ,,	20 by 10	27 10 0
	18 by 10	22 0 0
First quality ,, ,,	18 by 9	18 0 0
,, ,,	16 by 10	17 0 0
,, ,,	16 by 8	13 5 0

TILES.

	Per 1,000 f.o.r. London. £ s. d.
Best machine-made tiles from Broseley or Staffordshire district.....	6 2 6
Ditto hand-made ditto.....	6 7 6
Ornamental ditto	6 10 0
Hip and valley tiles (per dozen)	0 14 0

METALS.

WROUGHT-IRON TUBES AND FITTINGS—

(Discount off List for lot of not less than £10 net value delivered direct from works. 5 per cent. less carriage forward if sent from London stocks.)

	Sizes up to and including 2 in. Tubes.	Fittings.	Sizes 2½ in. to 6 in. Tubes.	Fittings.
Gas	£6½	32½	31½	37½
Water	18½	28¼	26½	35
Steam	11½	25	21½	32½
Galvanised Gas ..	7½	25	12½	30
,, Water +	2½	—21½ ..	—50	—27½
,, Steam +	12½	—17½	+2½	—25

L.C.C. COATED SOIL PIPES—London Prices ex works.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles s. d.
2 in. per yd. in 6 fts..	4 7	.. 3 4	.. 4 0
2½ in. ,, ..	5 6	.. 3 8	.. 5 0
3 in. ,, ..	6 9	.. 4 0	.. 6 0
3½ in. ,, ..	7 6	.. 5 0	.. 7 0
4 in. ,, ..	7 11	.. 5 8	.. 8 0

RAIN-WATER PIPES, &c.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles s. d.
2 in. per yd. in 6fts. plain	3 4	.. 1 10	.. 2 6
2½ in. ,, ,, ..	3 9	.. 2 2	.. 3 0
3 in. ,, ,, ..	4 5	.. 2 8	.. 4 0
3½ in. ,, ,, ..	5 4	.. 3 2	.. 4 8
4 in. ,, ,, ..	5 7½	.. 3 10	.. 5 8

L.C.C. DRAIN PIPES,—9 ft. lengths. London Prices. 4 in., 8s. 4d. .. 5 in.. 9s. 7d. .. 6 in.. 11s. 9d.

	Per ton in London. £ s. d.		£ s. d.
IRON—			
Common Bars	24 0 0	to	25 0 0
Staffordshire Crown Bars - good merchant quality	25 0 0	..	26 0 0
Staffordshire "Marked Bars"	26 0 0	..	27 0 0
Mild Steel Bars	22 10 0	..	23 10 0
Steel Bars, Ferro-Concrete quality, basis price ..	22 0 0	..	23 0 0
Hoop Iron, basis price ..	27 0 0	..	28 0 0
,, ,, Galvanised ..	38 0 0	..	—
Sheet Iron Black—			
Ordinary sizes to 20 g. ..	25 0 0	..	25 10 0
,, ,, 24 g. ..	26 0 0	..	26 10 0
,, ,, 26 g. ..	27 0 0	..	28 0 0

Sheet iron, Galvanised flat, ordinary quality—

Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g. ..	34	0	0..	—	Nominal prices.
Ordinary sizes to 22 g. and 24 g.....	34	0	0..34	10 0	
Ordinary sizes to 26 g. ..	36	0	0..36	10 0	

METALS (*Continued*).

	Per ton in London. £ s. d.		£ s. d.
Sheet Iron, Galvanised, flat, best quality—			
Ordinary sizes to 20 g. ..	35 10 0	..	Nominal prices.
,, ,, 22 g. and 24 g.	36 0 0	..	
Ordinary sizes to 26 g. ..	39 0 0	..	
Galvanised Corrugated Sheets—			
Ordinary sizes, 6 ft. to 8 ft. 20 g.....	33 0 0	..	Nominal prices only.
Ordinary sizes, 22 g. and 24 g.....	33 10 0	..	
Ordinary sizes, 26 g.	32 10 0	..	
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker.....	27 0 0	..	—
Best Soft Steel Sheets, 20 g. and 24 g.....	27 5 0	..	—
Best Soft Steel Sheets, 26 g.	29 0 0	..	—
Cut Nails, 3 in. to 6 in.	31 0 0	..	32 0 0

(Under 3 in. usual trade extras.)

LEAD, &c.

Delivered in London.

	£ s. d.		
LEAD—Sheet, English, 4 lb. and up	37 0 0	..	—
Pipe in coils	37 10 0	..	—
Soil Pipe	40 0 0	..	—
Compo pipe	42 10 0	..	—

NOTE—Country delivery, 20s. per ton extra; lots under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra.

Old lead, ex London area, at Mills ..... per ton	23 10 0	..	—
Do., ex country, carriage forward..... per ton	24 10 0	..	—
COPPER—			
Strong Sheet ....per lb.	0 2 3	..	—
Thin ,, ... ,,	0 2 4	..	—
Copper nails .... ,,	0 2 3	..	—
Copper wire .... ,,	0 2 4	..	—
TIN—English Ingots ,,	0 2 10	..	—
SOLDER—Plumbers' ,,	0 1 3	..	—
Tinmen's..... ,,	0 1 5	..	—
Blowpipe ..... ,,	0 1 8	..	—

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES AND IN SQUARES IN ORDINARY SIZES.

	Per Ft.		Per Ft.
15 oz. fourths	7½d.	32 oz. fourths	10½d.
,, thirds	8d.	,, thirds	11½d.
21 ,, fourths	8½d.	Fluted, Obscured and Enamelled Sheet.	
,, thirds	8½d.		
26 ,, fourths .. .	9½d.	15 oz.	7½d.
,, thirds	10½d.	21 ,,	8½d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
¼ Rolled plate (unobtainable)	—
⅜ Rough rolled and rough cast plate.....	6d.
¼ Rough rolled and rough cast plate.....	6½d.
Figured Rolled, Oxford Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish white	6½d.
Ditto, tinted	7½d.
Rolled Sheet	6d.
White Rolled Cathedral.....	6d.
Tinted do.	6½d.

PAINTS, &c.

		£ s. d.
Raw Linseed Oil in pipes..... per gallon		0 10 0
,, ,, ,, in barrels .... ,,		0 10 6
,, ,, ,, in drums .... ,,		0 10 10
Boiled ,, ,, in barrels .... ,,		0 11 0
,, ,, ,, in drums .... ,,		0 11 4
Turpentine in barrels ..... ,,		0 11 5
,, in drums (10 gall.) .. ,,		0 11 11
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)		66 0 0
GENUINE WHITE LEAD PAINT— "Blackfriars," "Nine Elms," "Park," and other best brands (in 14 lb. tins) not less than 5 cwt. lots..per ton delivered		95 10 0
Red Lead, Dry (packages extra) .. per ton		46 10 0
Best Linseed Oil Putty ..... per cwt.		1 11 3
Filocol..... per cwt.		0 16 6
Size. X D Quality..... fkn.		0 6 0

VARNISHES, &c.

	Per gallon. £ s. d.
Oak Varnish.....Outside	0 17 0
Fine ditto ..... ditto	0 19 0
Fine Copal ..... ditto	0 20 6
Pale Copal ..... ditto	0 21 6
Pale Copal Carriage ..... ditto	0 23 6
Best ditto ..... ditto	0 33 6
Floor Varnish..... Inside	0 18 0
Fine Pale Paper ..... ditto	0 17 0
Fine Copal Cabinet ..... ditto	0 21 6
Fine Copal flatting ..... ditto	0 19 6
Hard drying Oak ..... ditto	0 17 0
Fine Hard drying Oak ..... ditto	0 18 0
Fine Copal Varnish ..... ditto	0 19 6
Pale ditto ..... ditto	0 21 6
Best ditto ..... ditto	0 33 6
Best Japan Gold Size.....	0 19 0
Best Black Japan	0 22 0
Oak and Mahogany Stain	0 21 0
Brunswick Black	0 14 0
Berlin Black.....	0 19 0
Knotting	0 31 0
French and Brush Polish	0 22 0
Liquid Dryers in Terebine	0 17 0

* The information given on this page has been specially compiled for THE BUILDER and is copyright. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach him *not later than* 12 *noon on Wednesday*.

* Denotes *accepted* † Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.

GLASGOW.—For slaters' work at Dalmarnock Generating Station for the Corporation :—

*H. Arbuckle & Son	£204 17 10

GLASGOW.—For (*a*) painters' work and (*b*) cleaning work at Ruchill Hospital, for the Corporation :—

*J. Stirling	£152 2 6
* (*b*) A. & J. Scott	642 0 0

LONDON.—For general repairs, painting and cleaning at the Newington Institution, Westmoreland-road, S.E., for the Guardians of the Southwark Union. Mr. A. Saxon Snell, F.R.I.B.A., Architect, 9, Bentinck-street, W. 1 :—

*G. Hill & Sons, Camberwell.
R. Merton Hughes, Baron's-court.
T. Brown & Sons, Herne Hill.
J. Marsland & Sons, Walworth.
Harrison & Co., Cricklewood.
W. King & Son, Vauxhall.
A. H. Sims, Devonshire-square.
J. E. Whiter, Southwark.

NORTHAMPTON.—For the construction of Boughton Service Reservoir (No. 2) for the Corporation :—

*W. Muirhead, McDonald, Wilson & Co., Birmingham ..	£33,886 12 7

* Rescinded.

ORSETT.—For the erection of fourteen cottages at West Thurrock for the R.D.C. :—

*F. C. Stark	£8,940 0 0

RADLEY, NEAR OXFORD.—House, for Mr. J. Silvester. Mr. Harry W. Smith, M.S.A., architect, High-street, Oxford. Quantities by Mr. J. H. England, Ship-street, Oxford.

T. H. Kingerlee & Sons	£1,938
Woolridge & Simpson	1,897
Benfield & Loxley	1,795
S. Hutchins & Sons	1,535
N. Capel & Son	1,530
*Ephraim Organ & Son	1,472

TRADE NEWS.

Messrs. Winget, Ltd., have removed their North of England office at Middlesbrough, to 27, Wilson-street, opposite the Royal Exchange. Here they now have their own showrooms, where their concrete-block and slab-making machinery, and concrete chain-spade mixer, may be seen in operation.

"Croid" (manufactured by the Improved Liquid Glues Co., Ltd., of Gt. Hermitage-street, London, E. 1) is a liquid glue which has been extensively used in the manufacture of aeroplanes, including the Vickers machine which crossed the Atlantic. It is claimed to be the strongest glue known, and the fact that it is used cold, makes it very economical and handy in use.

"Glassnet," for which Messrs. Burnell & Lethern, of 29, Ludgate-hill, London, E.C., are the agents, is a substitute for glass, composed of wire netting with a small mesh, the spaces of which are filled with a very thin sheet of material which would fill all purposes for which frosted glass is used. It is especially recommended for factory roofs, skylights, &c., and among the advantages claimed for it are that it is cheaper than glass, can be cut with shears, and bent to any desired shape, and the little risk of breakage. In case of fire, there is no danger from falling glass, and no putty is required for fixing. It can be supplied in any desired colour, and is supplied in six grades, ranging in weight from 1 lb. 2 oz. to 5 lb. 3 oz. per sq. yard.

The London Warming & Ventilating Co., Ltd., of 20, Newman Street, W.1, has issued a booklet entitled "Fuel Economy and How to Obtain It," by Mr. A. P. Florence, in which an appeal is made for the use of more economical grates. Central heating systems, and the use of anthracite are advocated. It is pointed out that less than half the quantity of coal is consumed for domestic purposes on the Continent, as compared with this country, and this is attributed to the amount of heat which passes up the chimney; in some cases in this country this wastage is estimated at 85 per cent. Tests made by the Coal Control Department have demonstrated that coarse anthracite burns admirably in closed stoves, and effects a saving of 25 per cent. The smoke nuisance would also be largely abated by the use of anthracite. The booklet contains numerous illustrations of stoves and grates specially designed for burning anthracite.

We have received an illustrated catalogue describing the "Jaeger" concrete mixers, placers, paving plant, grouting outfits, &c. The mixer is a batch mixer of the single-opening tilting-drum type. The drum consists of a semi-steel bowl, which forms the lower half, and a steel cone, which forms the top half. The bowl has two flat places on opposite sides, which help to carry forward the material from the bottom, and the cone carries it back. This arrangement is claimed to make the most thorough mixes in the shortest time. The "7-L" outfit, with power loader, has a capacity of 8 cubic ft. of mixed concrete per batch, or 12 cubic ft. of unmixed materials. The "4-L" outfit has a capacity of 4½ cubic ft. of mixed concrete, or 7 cubic ft. of unmixed materials, and is operated by a 3-h.p. gasolene engine. Both these types may be obtained with a hoist attachment for loading the drum. The "Jaeger" placing plant is designed to eliminate labour as much as possible, and for speedy erection. The catalogue contains several illustrations of the placer in operation on such work as placing mixed concrete on foundations, floors, &c., and the construction of a reservoir. The "No. 8 Jaeger" paver is built in one size only, viz., a capacity of 8 cubic ft. of mixed concrete per batch, or 12 cubic ft. of unmixed materials. It is equipped with an open-end bucket, power discharge, platform for operator, one-man control, 8-h.p. engine, collapsible spout and a reverse gear. Messrs. Millars' Timber & Trading Co., Ltd., of Pinner's Hall, London, E.C.2, are the agents in this country for the "Jaeger" products.

You are invited to send your enquiries for worked
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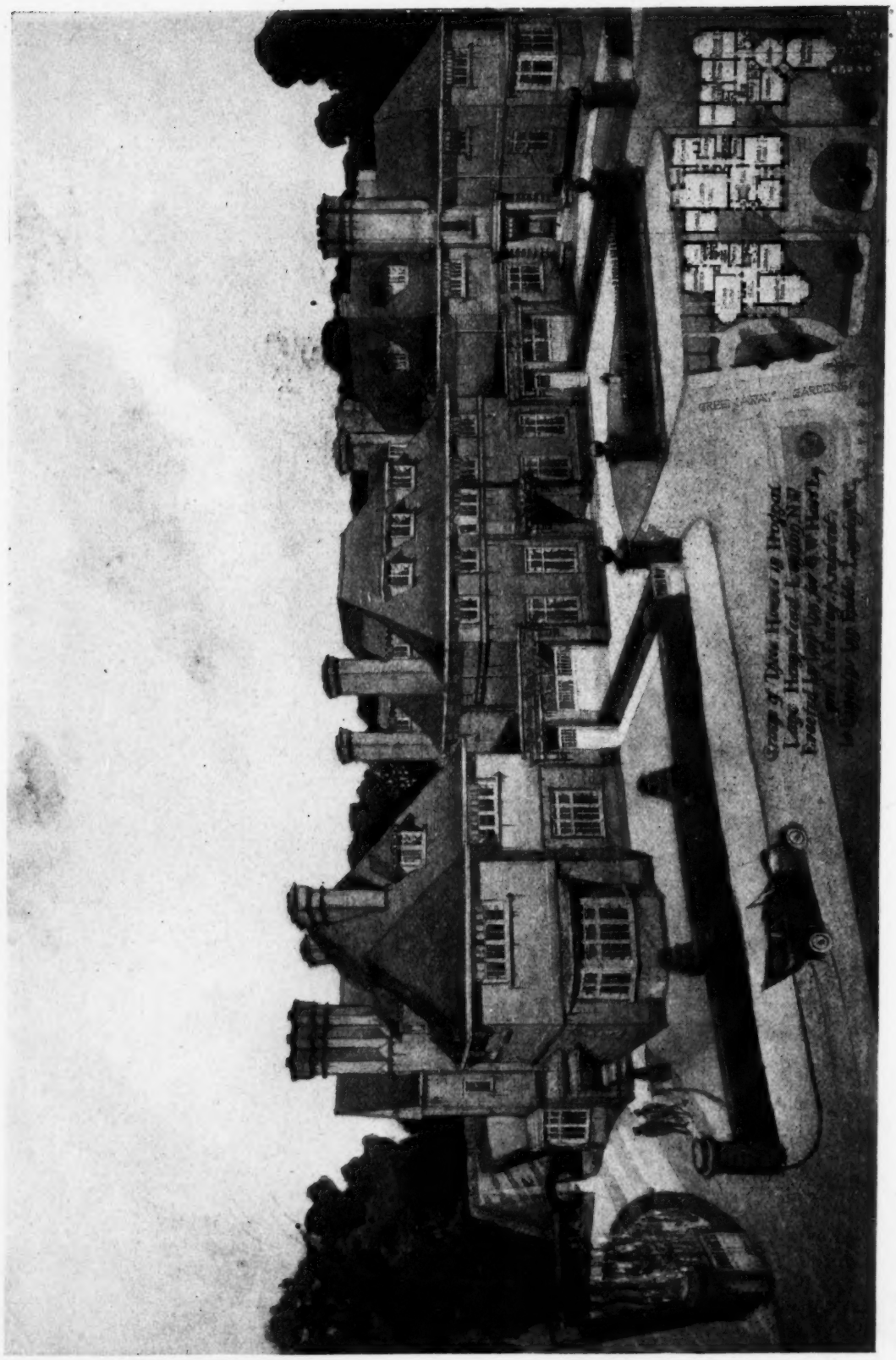

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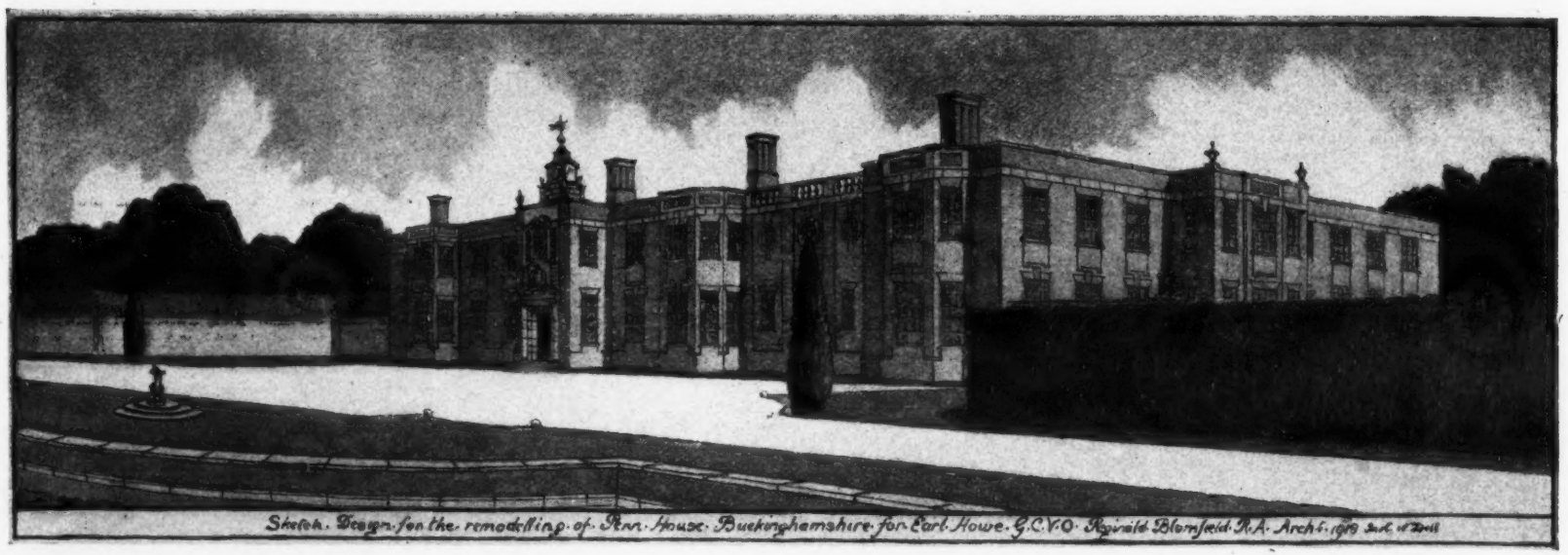

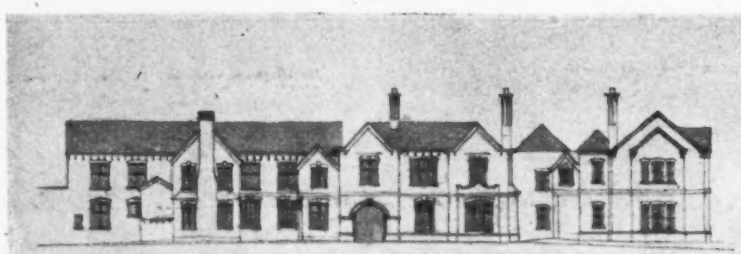

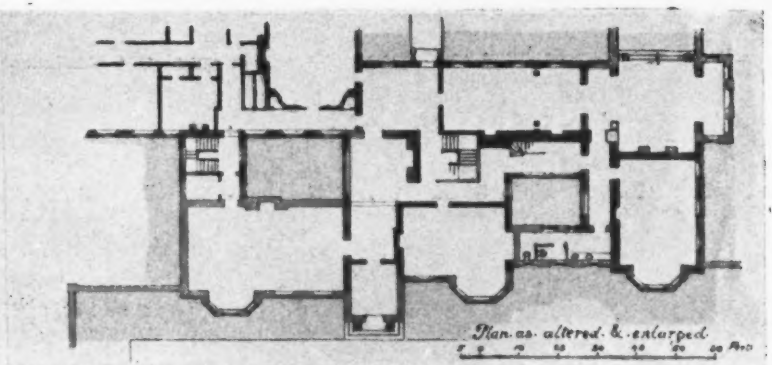

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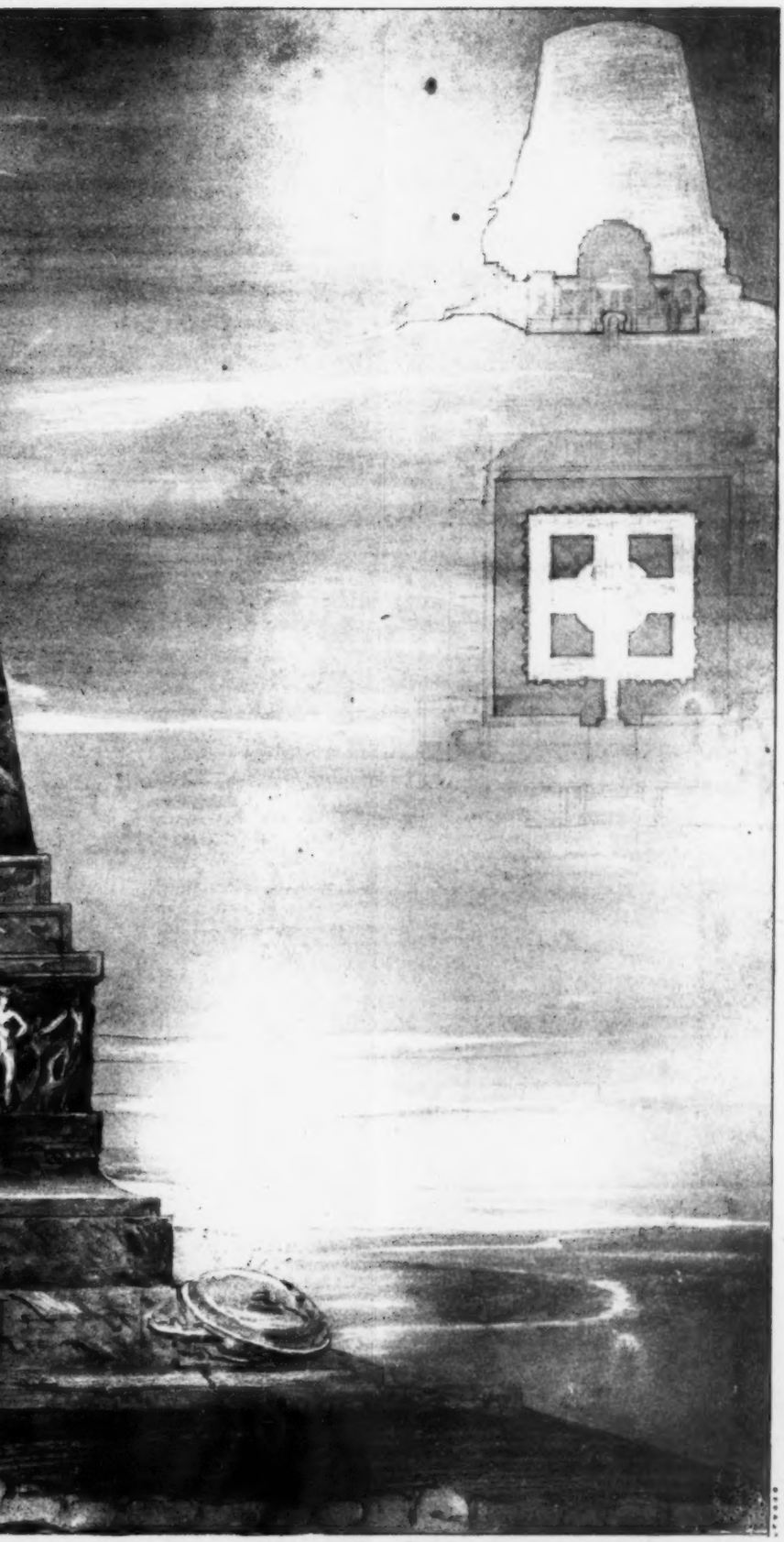

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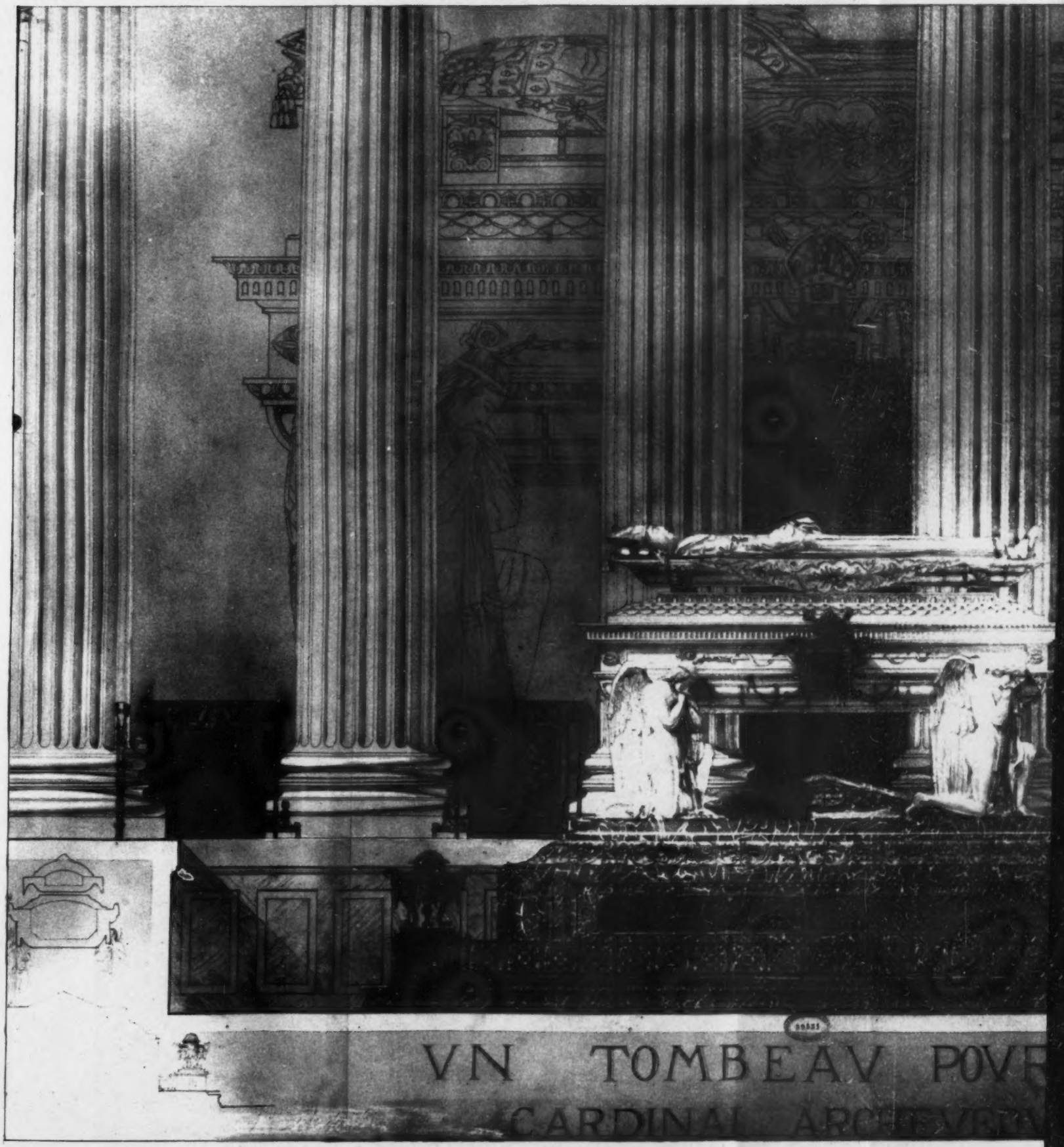

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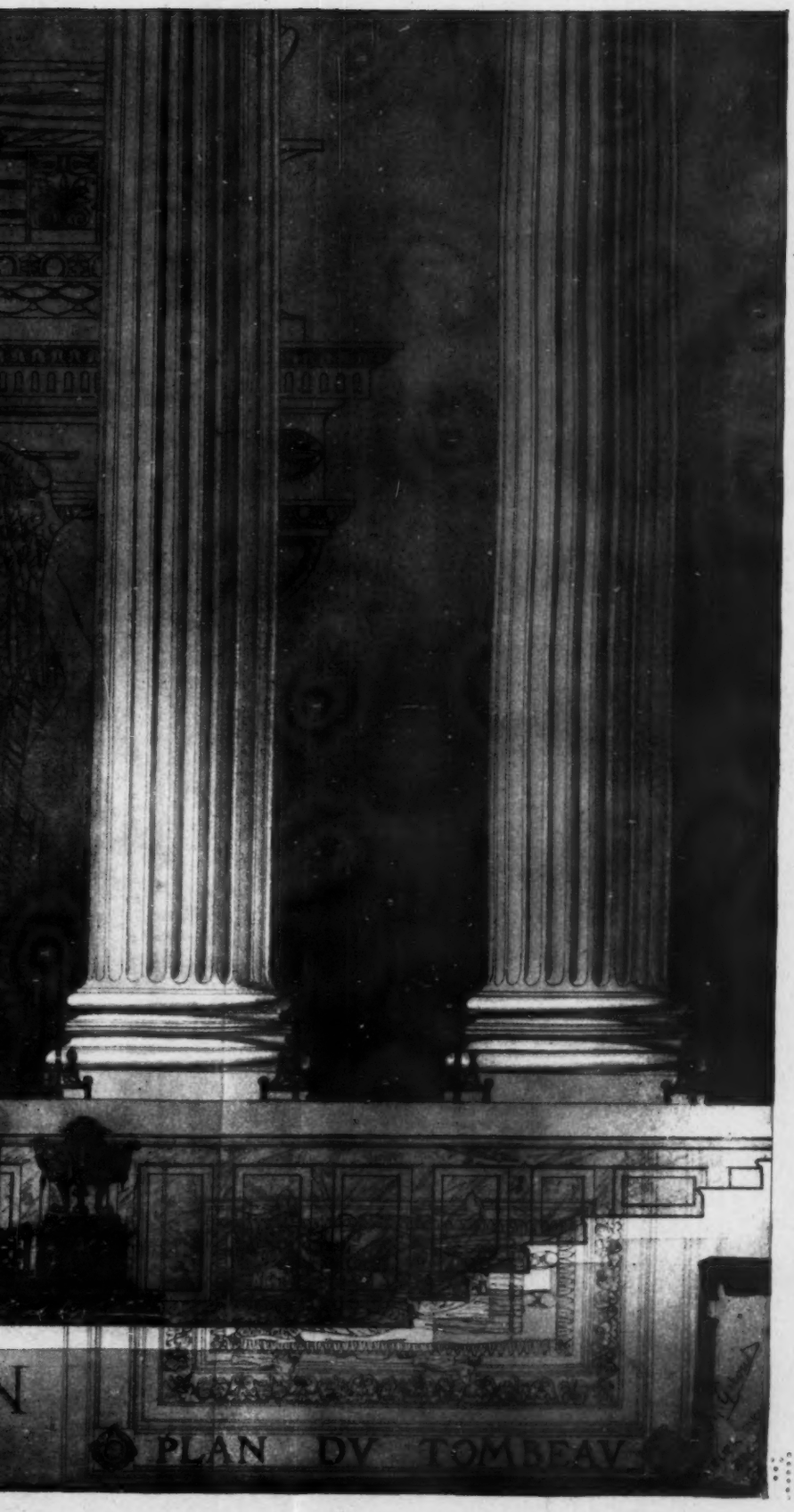

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